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Volume 24 JUNE 1955 Number 6

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Volume 24 JUNE, 1955 *Number 6*

CONTENTS

MORTALITY AMONG WORKERS IN CIGARETTE FACTORIES — Harold F. Dorn and William S. Baum — 239

OCCUPATIONAL AND NON-OCCUPATIONAL STRESS IN RELATION TO EMPLOYEE HEALTH — E. P. Luongo, M.D. — 242

ADMINISTRATIVE MEDICINE—NECESSARY COMPONENT OF INDUSTRIAL HEALTH
The C. O. Sappington Memorial Lecture — E. Dwight Barnett, M.D. — 247

INSTRUCTION IN OCCUPATIONAL MEDICINE AT THE UNDERGRADUATE LEVEL
The University of Oklahoma Workshop — Jean Spencer Felton, M.D. — 251

TRAUMA AND THE PSYCHIATRIST — John R. Adams, M.D. — 257

PSYCHIATRY IN INDUSTRY—TOMORROW — W. Ray Poindexter, M.D. — 261

THE MANAGEMENT OF MULTIPLE INJURIES — John L. Lindquist, M.D. — 264

THE ALCOHOLIC IN INDUSTRY—AND HIS REHABILITATION — James I. Roberts, M.D., and Edward R. Russo, M.D. — 269

THE STATUS OF THE SURGICAL TREATMENT OF HYPERTENSION AND PERIPHERAL VASCULAR DISEASE — Adrien Verbrugghen, M.D. — 273

1955 INDUSTRIAL HEALTH CONFERENCE,
Buffalo, New York, April 23-29 — 276

PRESIDENT'S PAGE — Kieffer Davis, M.D. — 280

INDUSTRIAL MEDICAL ASSOCIATION — 281

BOOKS — 282

EDITORIALS:
At Last! Specialty Certification — 285
End-of-Probation Interview — 286

Associations: Officers and Directors — 4, 6, 8, 10, 12
Personal — 6, 8, 10, 12, 14
News, Comment, Opinion — 43
(Advertisers' Index — 56)

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NORBERT J. ROBERTS, M.D., Medical Director, Pennsylvania Railroad, has established a Section of Industrial Hygiene in his Medical Department. This is the first of its kind on an American railroad. It will be headed by JAMES F. MORGAN, formerly Head Chemical Hygienist of the Industrial Hygiene Foundation, at Mellon Institute, Pittsburgh. DR. ROBERTS says of MR. MORGAN that he is highly qualified, both by training and experience, for his new work on the Pennsylvania. "At 39, he has a fine record among the scientists in his field for the contributions he has already been able to make to the maintenance of health of industrial workers in many occupational fields. I believe his work will contribute greatly to the promotion of our employees' health in all phases of our activities. He will have his headquarters in Philadelphia." MR. MORGAN is a native of Louisiana; was graduated from George Washington University; later studied at Georgetown University and the Harvard School of Public Health. As a Lieutenant in the Naval Reserve during World War II, he participated in the joint Navy-Maritime Commission shipyard health program under the direction of DR. PHILIP DRINKER, Harvard School of Public Health. Prior to that, he was a Biochemist with the U.S. Food and Drug Administration. He was named to his former post with the Industrial Hygiene Foundation in 1947. He is a member of the American Chemical Society, and of the American Industrial Hygiene Association, of which he was Councilor of the Pittsburgh Section from 1953 until this year.

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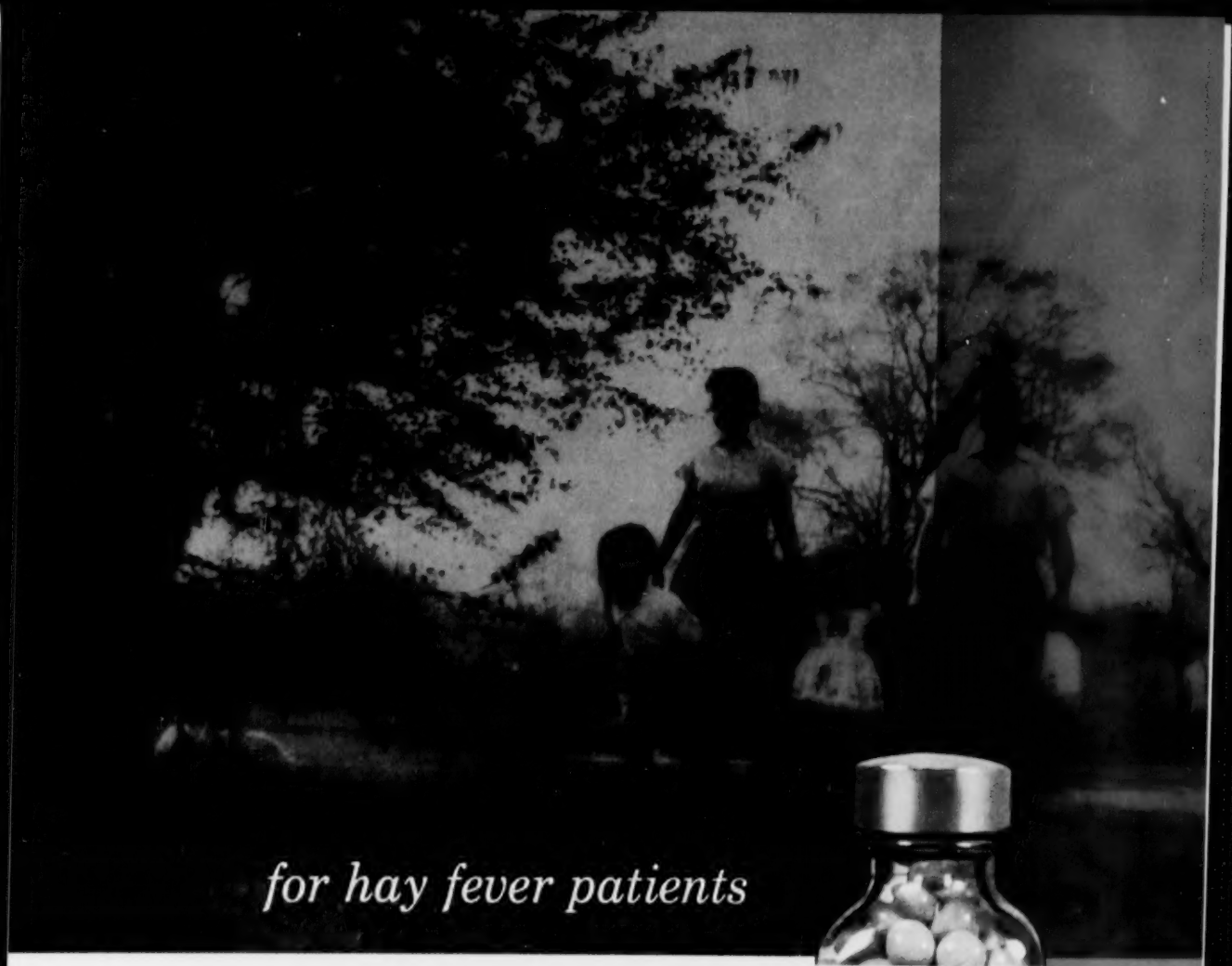

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F. BENEDICT LANAHAN, M.D., Past-President and Co-Founder of the Industrial Medical Association of Philadelphia, has been appointed Medical Director of the American Federation of Labor Medical Service Plan to fill the vacancy caused by the recent resignation of DR. A. J. ZISERMAN. The union medical service, which recently broke ground for its new Medical Center, serves about 50,000 members of 26 AFL locals in the Philadelphia area. DR. LANAHAN will remain as a Consultant Medical Director of the Electric Storage Battery Company, where he gained national prominence for his work in the field of lead poisoning.

WILLIAM A. SAWYER, M.D., Rochester, New York, was the guest speaker at the Annual Meeting of the Cleveland, Ohio Academy of Medicine on the evening of May 20. His subject was "Sociological Trends in Medical Practice." DR. SAWYER spoke from his background of many years in industrial medicine and his more recent experiences with the American Medical Association Committee on Medical Care for Industrial Workers, and as Medical Consultant to the International Association of Machinists.

JOSEPH T. NOE, M.D., has been appointed Medical Director of Wyandotte Chemicals Corporation, Wyandotte, Michigan, succeeding WILLIAM H. HONOR, M.D., who died early in March. DR. NOE, who has been Medical Director of the East Liverpool District Pottery Group since 1948, took up his new duties on May 1. In his new post he will be responsible for the development and administration of the health services for the employees of Wyandotte, in line with the expanding health maintenance program currently under way. DR. NOE is a graduate of the University of Louisville, 1933, and of the University of Louisville School of Medicine, 1937. He combined private and industrial practice (Inland Steel Company coal mines) and public health work in Wheelwright, Kentucky, before going into the Armed Services in 1940. After five years of active duty in the Armed Forces, he became Assistant Medical Director of Inland Steel Company, East Chicago, Indiana, which post he held until his appointment as Medical Director of the Pottery Group in East Liver-

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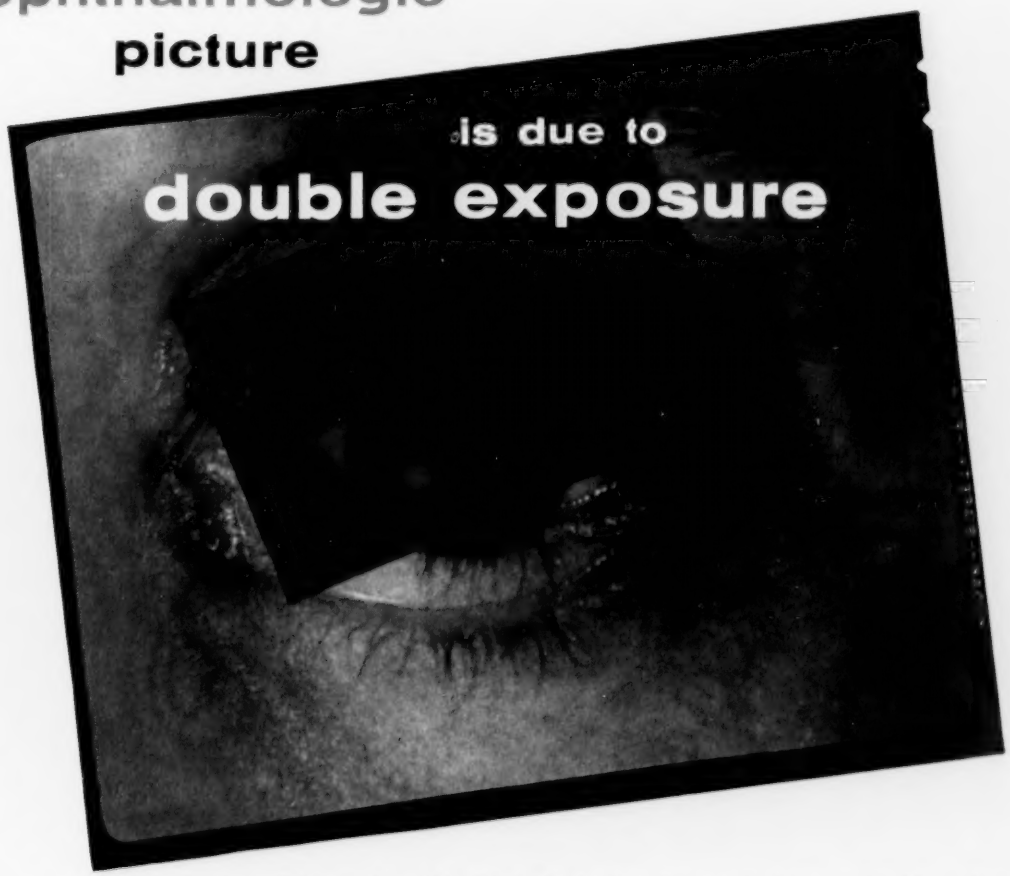

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1. Rukes, J. M., et al.: Metabolism 3:481, 1954. 2. Cannon, E. J., and Leopold, I. H.: A.M.A. Arch. Ophth. 47:426, 1952.

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pool, Ohio. He is a Fellow of the Industrial Medical Association, and Counselor of District 8; a Fellow of the American College of Chest Physicians; a member of the American Medical Association, American Industrial Hygiene Association, the Medical Directors' Club of Pittsburgh, and the West Virginia Public Health Association. He has been active in the tri-state area in various health and civic organizations. The medical service presided over by DR. NOE, as Medical Director for the East Liverpool District Potteries received from the Industrial Medical Association the 1952 Citation for Health Achievement in Industry.

GERALD GORDON, M.D., has been appointed Chief of the Psychiatric Section of the Du Pont Company's Medical Division, succeeding FREDERICK W. DERSHIMER, M.D., who retired in April after reaching retirement age. DR. GORDON has been a psychiatrist on the company's medical staff since 1946. He attended the Wilmington, Delaware, high school, and was graduated from the University of Alabama in 1934 with a Bachelor of Arts degree. He continued there for two years in the School of Medicine, and from 1936 to 1938 studied at the University of Louisville's School of Medicine, where he received his M.D. degree. Following internship at the California Hospital in Los Angeles, he went into private practice for two years. He volunteered for emergency medical service in England in 1941, and from 1942 to 1945 served as a medical officer, mostly as psychiatrist, with the U.S. Army psychiatric hospitals in England. Returning to Wilmington, he had a private psychiatric practice for a

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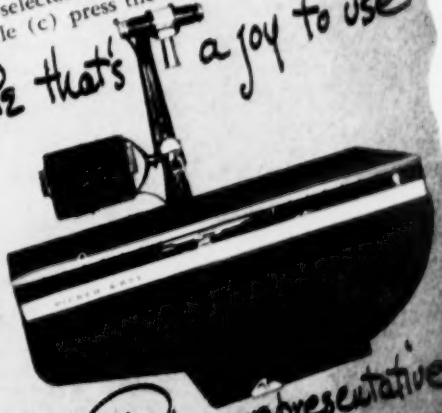

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year before joining the Du Pont medical staff. He is a member of the American Medical Association, the American Psychiatric Association, and the American Academy of Occupational Medicine.

JOHN POST, M.D., has been appointed Medical Director of the Zenith Radio Corporation, Chicago. With the exception of five years' service with the U.S. Army Medical Corps during the past war, DR. POST has been engaged in private practice in Chicago since 1938. He has been a member of the staff of Presbyterian Hospital.

ROBERT H. FLINN, M.D., has been appointed Chief of the Division of Health of the Bureau of Mines, on a two-year detail from the U.S. Public Health Service. He assumed his new duties May 2. The Division of Health was established in December, 1954; part of a reorganization of the Bureau's health and safety activities. As Chief, DR. FLINN will assist in formulating programs and basic policies with regard to health in the mineral industries and directing research designed to minimize health hazards peculiar to those industries. DR. FLINN has been with the Public Health Service since 1931. He was born in Marion, Indiana; took his M.D. degree from Indiana University in 1930, after having received his B.S. from the same university. From 1936 to 1942, while stationed at the National Institutes of Health, Bethesda, he conducted a series of field investigations especially pertinent to his duties with the Bureau. These included studies of lead poisoning and silicosis among West Virginia pottery workers, lead poisoning in storage battery plants, manganese poisoning in ore-crushing mills, anthraco-silicosis in Utah bituminous coal mines, health hazards among smelter workers, chronic mercurialism among hatters and laboratory workers, and compressed air illness in tunnel construction. He also worked with the Maryland State Health Department to develop an industrial hygiene program. He holds the Army Commendation Ribbon for his work on industrial health problems connected with the manufacture and loading into shells and bombs of TNT, tetryl, and other high explosives, during assignment to the Safety and Security Division, Army Ord-

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nance Department, in 1942-45. He participated in a study of the effects of wartime bombing in Japan upon health problems. Subsequently he was detailed for four years to the Health Office of the Federal Civil Defense Administration, and later returned to the Public Health Service to serve as adviser to the Surgeon General on civil defense matters. His memberships include American Medical Association, American Public Health Association, Industrial Medical Association, and American College of Physicians.

ALLAN J. FLEMING, M.D., Medical Director, E. I. Du Pont de Nemours & Company, and SEWARD E. MILLER, Director, Division of Occupational Hygiene, Public Health Service, are this year's newly elected members of the Ramazzini Society.

THE American Academy of Occupational Medicine held a dinner meeting on April 26, 1955, for its members and Fellows who were attending the Industrial Health Conference in Buffalo. Among those present were a number of members from the West Coast who do not ordinarily find it possible to attend the meetings of the Academy. Prior to the dinner the Board of Directors met and elected to membership: ELSTON L. BELKNAP, M.D., Marquette University School of Medicine, Milwaukee, Wisconsin; FRANCIS H. DeGRACE, M.D., Wright Aeronautical Corporation, Woodridge, New Jersey; EDWARD C. RILEY, M.D., Eastman Kodak Company, Rochester, New York; GEORGE A. H. TICE, E. I. du Pont de Nemours, Augusta, Georgia; NATHAN G. TOBEY, M.D., Chance Vought Aircraft, Dallas, Texas. WILLIAM F. ASHE, M.D., of the Ohio State University College of Medicine, was re-elected to Fellowship. The Treasurer and Managing Director of the Industrial Medical Association, EDWARD C. HOLMBLAD, M.D., who is also a Fellow of the Academy, was among those who spoke briefly after the dinner. DR. HOLMBLAD suggested that an Academy dinner be made a regular event at the time of the IMA meetings, and this suggestion was enthusiastically approved by all present. ROBERT A. KEHOE, M.D., described the latest activities of the American Board of Occupational Medicine, and received an ovation for the splendid work he had done in bringing the negotiations to a successful consummation. Decision was reached to hold the Eighth Annual Meeting of the American Academy of Occupational Medicine in Cincinnati, Ohio, during the second or third week of February, 1956.

GEORGE F. WILKINS, M.D., Medical Director, New England Telephone & Telegraph Company, Chairman, Committee on Industrial Health, Massachusetts Medical Society, Instructor in Surgery, Harvard Medical School, and Past-President, Industrial Medical Association, at the 105th Annual Meeting of the Indiana State Medical Association, in October, 1954, presented an excellent study on "The Role of the General Practitioner in Industrial Medicine." This appears in full text in the *Journal of the Indiana State Medical Association* for May, 1955.

GORDON MONTGOMERY MEADE, M.D., Executive Director of the Trudeau-Saranc Institute, Saranac Lake, New York, joined the staff of the Memorial Hospital Association on May 16. Ten new hospitals designed primarily for beneficiaries of the United Mine Workers Welfare and Retirement Fund are moving toward completion in the bituminous coal fields of West Virginia, Kentucky and Virginia. DR. MEADE will first be assigned to the Washington office of the Association as a Clinical Consultant to assist in the development of the medical program, and then, with the opening of the Williamson Memorial Medical Center at Williamson, West Virginia, in January, 1956, he will become Chief of Clinical Services, with responsibility for coordinating medical care, teaching and clinical investigation for the Williamson Memorial Medical Center, as well as for the three other hospitals in the Williamson group located at Man, West Virginia, Pikeville, Kentucky, and McDowell, Kentucky. DR. MEADE was an honor graduate of the University of Rochester School of Medicine in 1935; held numerous responsible positions at Rochester as Assistant Director of the Strong Memorial Hospital, Director of the Tuberculosis Control Program at the University of Rochester, and Assistant Professor of Medicine; also served as Assistant Professor of Medicine at the University of Vermont, and Special Consultant to the Division of Hospitals, U.S. Public Health Service. He has been at Trudeau since 1946. He served as Medical Director of Trudeau Sanatorium from 1950 to 1953, and thereafter as Director of the Trudeau-Saranac Institute.

JAMES T. CASE, M.D., Emeritus Director of Northwestern University Medical School's Department of Radiology, on April 29, at Washington, D.C., received the Gold Medal Award of the American College of Radiology.

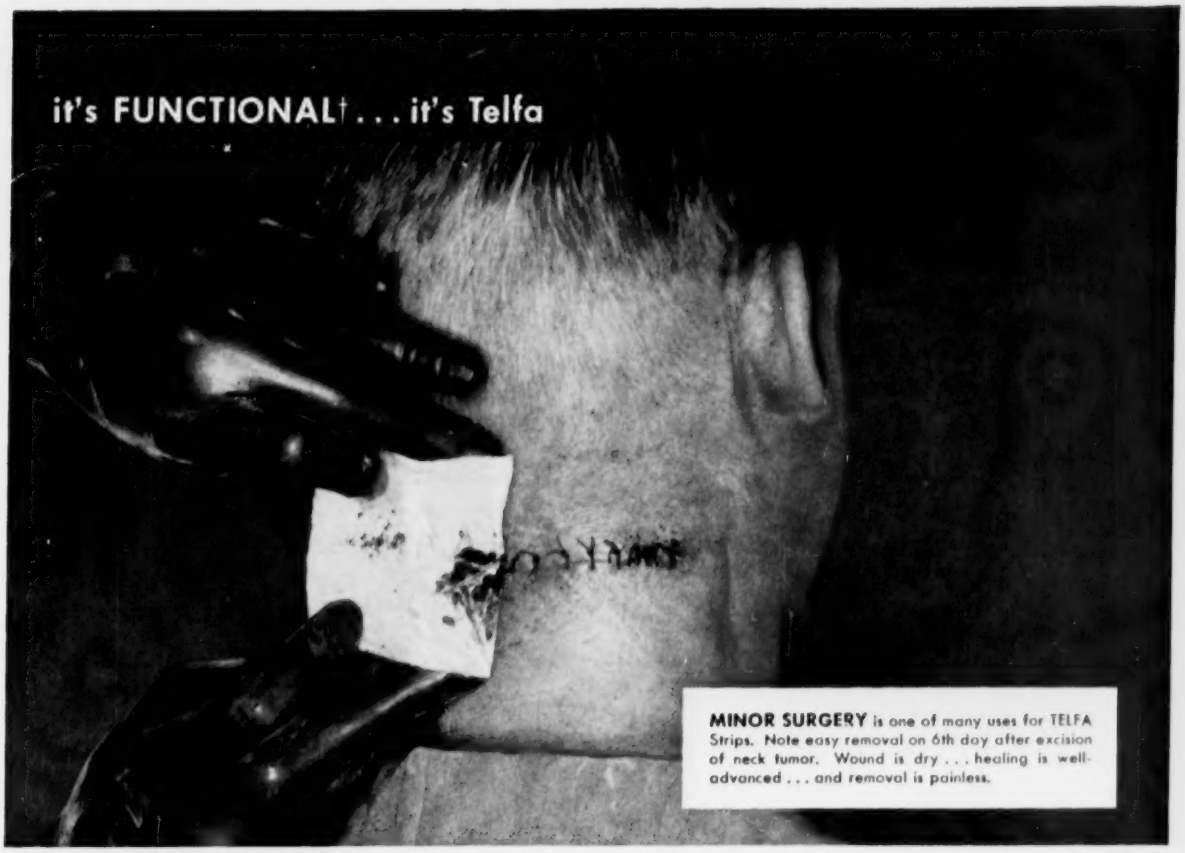
AMERICAN Public Health Association, together with 40 related organizations, has scheduled its 83rd Annual Meeting for November 14-18, 1955, to be held in the Municipal Auditorium at Kansas City, Missouri. Four hundred scientific papers will be presented during the 75 sessions, and an attendance of more than 5,000 public health workers from all parts of the free world is expected.

INDUSTRIAL Medicine is finding its way into management publications. *Management Methods* for March, 1955 (published by Management Magazines, Inc., New York City), under the title "What Management Should Know About Industrial Health Programs," adapts a presentation by LOUIS E. NEWMAN, Manager, Health and Safety Services, General Electric Company, at the Pacific-Northwest Industrial Health Conference.

CHARLES E. DUTCHESS, M.D., formerly Vice-President and Medical Director, Schenley Laboratories, announces his new Consultation Service to the Drug and Chemical Industries, covering Research and Development, Product Evaluation, Promotional Studies, Professional Relations, and Industrial Health. His office is at 520 Fifth Avenue, New York 36.

A FELLOWSHIP in Industrial Hygiene for the year 1955-56 has been offered to the School of Public Health, University of Michigan, Ann Arbor, by the James S. Kemper Foundation. Successful completion of the year's work will lead to the Degree of Master of Public Health (Industrial Health).

INTERNATIONAL ASSOCIATION OF INDUSTRIAL ACCIDENT BOARDS AND COMMISSIONS will hold its Forty-First Annual Meeting in Chicago, September 25-29, 1955, at the Sheraton Hotel.



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ENTIRELY NEW PRINCIPLE—TELFA Strips consist of a non-wettable, perforated plastic film bonded to *Webril*® backing of 100% pure absorbent cotton. Used alone or with overlying dressings, it is applied with *film side* next to wound, and held with bandage or adhesive. Perforations pass drainage into pad, prevent reverse flow. And regenerating tissue can't grow into dressing.

TELFA COSTS LESS per patient than conventional dressings. Available in standard 2½" x 4" and 3" x 8" strips, in hospital cases; and in 2" x 3" sterilized envelopes for doctors.

NEW SIZE FOR PLASTIC SURGERY AND BURNS: *new 8" x 10" size is especially suitable for dressing donor and recipient skin-graft sites, and for extensive burns.*

Count on *Curity* for †DRESSINGS THAT WORK

Curity dressings are *functional* dressings—"built from the wound up" to promote faster healing. This is the *Curity* approach to better hospital dressings for better patient care. And the greater efficiency of *Curity* dressings means *lower cost per patient*—the true measure of dressings economy.

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TELFA®

NON-ADHERENT STRIPS

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Division of The Kendall Company
309 West Jackson Blvd., Chicago 6, Illinois

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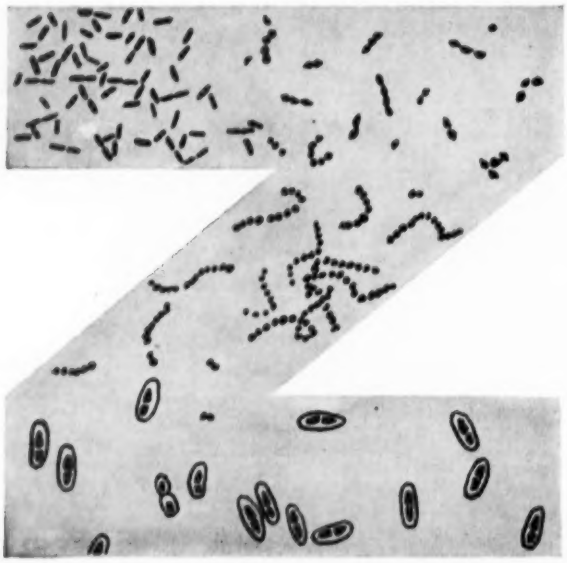

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CHLORIDE

high germicidal potency • low toxicity • nonirritating

WINTHROP *Winthrop-Stearns* INC. New York 18, N.Y. • Windsor, Ont.

Zephiran brand of benzalkonium chloride (refined)

When you specify the Pfizer antibiotic of your choice *Stress Fortified* with the B-complex, C and K vitamins recommended by the National Research Council, be sure to write SF* on your prescription

antibiotics *Stress Fortified* with vitamins include:

®Terramycin-SF
Brand of oxytetracycline with vitamins
CAPSULES 250 mg.

®Tetracyn-SF
Brand of tetracycline with vitamins
CAPSULES 250 mg.
ORAL SUSPENSION (fruit flavored)
125 mg./5 cc. teaspoonful

The minimum daily dose of each antibiotic *(1 Gm. of Terramycin or Tetracyn, or 600,000 units of penicillin)*
Stress Fortifies the patient *with the stress vitamin formula* **recommended by the National Research Council:**

Ascorbic acid, U.S.P.	300 mg.	Calcium pantothenate	20 mg.
Thiamine mononitrate	10 mg.	Vitamin B_{12} activity	4 mcg.
Riboflavin	10 mg.	Folic acid	1.5 mg.
Niacinamide	100 mg.	Menadione (vitamin K analog)	2 mg.
Pyridoxine hydrochloride	2 mg.		

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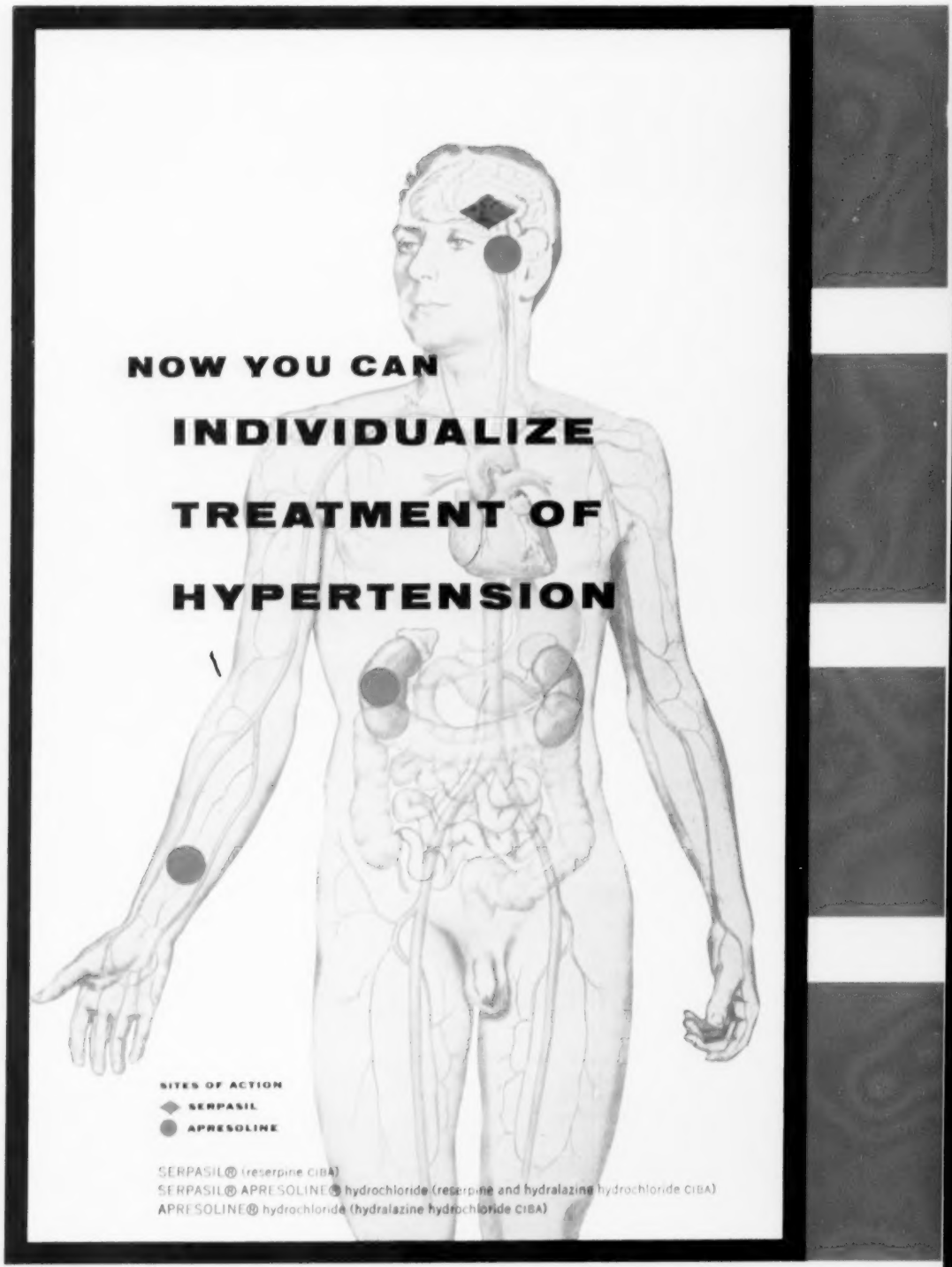
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SERPASIL, a pure crystalline alkaloid of rauwolfia root—particularly effective in the neurogenic forms of hypertension. *Acts centrally*—tranquilizes, moderately lowers blood pressure, slows heart rate.

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SERPASIL-APRESOLINE, a combination product offering convenience and economy in the more complicated cases involving both neurogenic and humoral factors.

Serpasil®-Apresoline®

In more refractory cases requiring further individualization of dosage:

APRESOLINE *acts centrally and peripherally* for a marked antihypertensive effect. Increases renal plasma flow—produces vasodilatation—inhibits pressor substances.

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Serpasil Tablets, 0.1 mg., 0.25 mg. and 1.0 mg.
Parenteral Solution (for neuropsychiatric use only),
2.5 mg. per ml., in 2-ml. ampuls.
Elixir, 0.2 mg. per 4-ml. teaspoonful.

Serpasil-Apresoline Tablets, each containing 0.1 mg. of Serpasil and 25 mg. of Apresoline.
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Apresoline Tablets, 10 mg., 25 mg., 50 mg. and 100 mg.
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SUMMIT, N. J.

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Modern industrial health care is increasingly concerned with the general health of employees as well as the routine treatment of the injured. If you plan to expand existing facilities or establish an entirely new department, A. S. Aloe has a planning department staffed with medical equipment experts, prepared to help you with layouts and suggested equipment lists. Our planning service is designed to save valuable time and relieve you of the burden of endless detail in preparing floor plans, check lists, etc. The illustrations above show the Aloe-equipped medical and laboratory installations of the Atlas Powder Company's plant in Chattanooga, Tennessee. Here, the employee is placed in an atmosphere equal, in every respect, to that of the private physician's office, and is therefore relieved of any possible doubt that he is the beneficiary of superior medical care. Please write for complete details.

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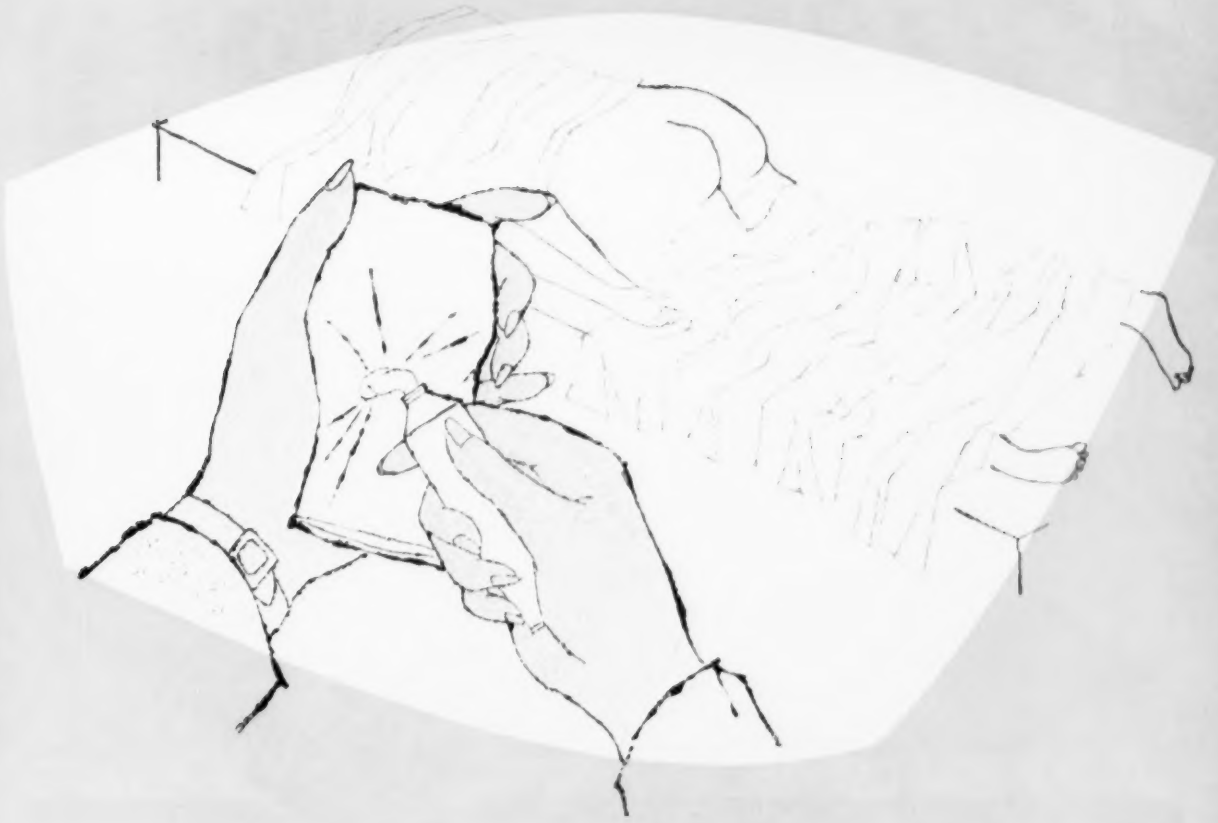

Prompt relief in anogenital pruritus

with greater safety from sensitization

NEW TRONOTHANE®

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TOPICAL SOLUTION

TRONOTHANE is a new, non-"caine" topical anesthetic. Its unique structure offers *a very low incidence of sensitization and toxicity, with no reactions reported in over 1,220 clinical trials to date.*[1,2,3,4]

TRONOTHANE promptly interrupts pruritus, without injections. One study[1], for example, notes palliation of itching in 172 of 185 pruritic patients. Good to excellent results were obtained in 24 of the 25 anogenital cases, including several prurutis ani and vulvae cases that had been considered intractable. Investigate this new drug soon.

Abbott

1. Schwartz, F. R., Tronothane in Common Pruritic Syndromes, Postgrad. Med., 16:19, July, 1954.
2. White, C. J., A New Anesthetic for Certain Diseases of the Skin, J. Lancet, 74:98, March, 1954.
3. Birnberg, C., and Horner, H., A Simple Method for the Relief of Postpartum Perineal Pain, Amer. J. Obst. & Gynec., 67:661, March, 1954.
4. Peal, L., and Karp, M., A New Surface Anesthetic Agent: Tronothane, Anesthesiology, in press, 1954.

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INDUSTRIAL NOISE CAN BE COSTLY TO INDUSTRY 4 WAYS:

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Straightaway Sound Protectors solve the problem by muffling the noise . . . yet voices are audible at all times. Unlike other devices, AO Sound Protectors are comfortable. They're sanitary also. Nothing enters the ear — ear protectors of soft vinyl seal the ear and bone conductor apparatus. Available in two helmet types, cotton for cold weather and nylon for warm weather — also available in adjustable headgear model. Earphones may be had with all types. FOR COMPLETE INFORMATION write Dept. 5176, American Optical Company for folder today.

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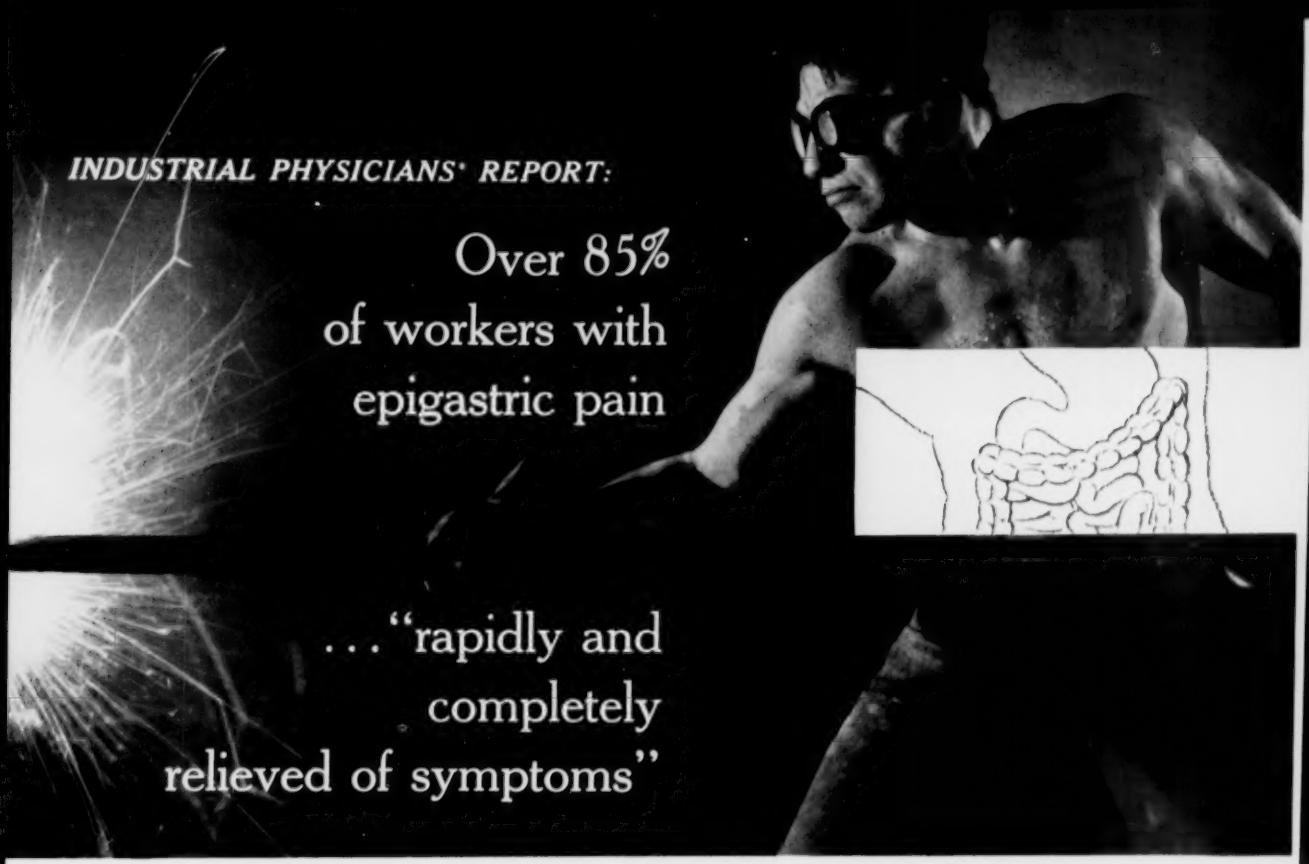

Noting that gastrointestinal symptoms were the chief complaints of more than half the workers reporting for treatment to their industrial clinic, Barden and co-workers* undertook an evaluation of Donnatal in providing rapid relief and minimizing absenteeism.

Based upon repeated clinical observation, case records, and progress reports over an eight-month period, the investigators conclude that Donnatal is "particularly effective for the relief of pain associated with smooth muscle spasm of the gastrointestinal tract." They observe also that:

"More than 85% of patients with epigastric pain and discomfort were rapidly and completely relieved of symptoms."

"... many employees were able to resume work within an hour."

"There was no evidence of undesirable side reactions."

DONNATAL® EXTENTABS** Robins

are particularly useful for industrial therapy, because once-a-day dosage provides effective spasmolysis for a twelve-hour period without the inconvenience of the customary four-hour dosage schedule. True *extended action* spasmolytic effects are provided by the special construction of Extentabs. Immediately after administration the equivalent of one Donnatal tablet is released, followed by the gradual and uniform release of the equivalent of two more Donnatal tablets, to provide sustained effects for 10 to 12 hours.

Each Donnatal tablet or capsule or each 5 cc. teaspoonful of Donnatal Elixir contains: hyoscyamine sulfate 0.1037 mg., atropine sulfate 0.0194 mg., hyoscine hydrobromide 0.0065 mg., phenobarbital (¼ gr.) 16.2 mg.—bottles of 100, 500, and 1000 tablets or capsules, and bottles of 1 pint and 1 gallon of elixir.

Donnatal No. 2 Tablets contain the same amounts of belladonna alkaloids with 32.4 mg. (½ gr.) phenobarbital per tablet—bottles of 100 and 500 tablets.

Donnatal Extentabs contain active ingredients equivalent to three regular Donnatal tablets—bottles of 100 and 500.

*Frank W. Barden, M.D., Paul S. Hill, M.D., William F. Mahoney, M.D., and Kenneth J. Cuneo, M.D., in a report from the Medical Department of the Saco-Lowell Shops and the Webber Memorial Hospital, Biddeford, Maine; published in the January, 1954 issue of the Journal of the Maine Medical Association (Vol. XXXXV, No. 1, Page 11).

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DONNATAL® Robins

TABLETS • CAPSULES • ELIXIR • EXTENTABS**

A. H. ROBINS CO., INC., RICHMOND 20, VIRGINIA • Ethical Pharmaceuticals of Merit since 1878

Why not keep this man *on the job throughout the poison ivy season?*

He's the one who at some time—or several times—during the season invariably reports "sick" with a full-blown poison ivy, oak, or sumac dermatitis which just has to run its course.

But does it? Not necessarily.

A recent clinical study• has shown that ZIRNOX will *prevent* Rhus dermatitis in a majority of cases if applied before or within eight hours following exposure. Beyond eight hours, with lesions already developed, it will relieve itching, and may prevent spreading, so that incapacitation is minimal.

If Rhus dermatitis contributes appreciably to *your* absentee problem during the summer, ZIRNOX is likely to be the answer you're seeking. If your regular source can't supply you, or for complete information and reprints, write

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Zirnox ™ *formerly Bristamin® Lotion with Zirconium*

Bristamin® dihydrogen citrate . . 1%
Zirconium oxide 4%

In a soothing neutral lotion base
Bottles of 6 fl. oz.

Bristamin® — Bristol Laboratories' brand of phenyltoloxamine

• *Cronk, G. A., and Naumann, D. E.: Antibiot. & Chemother. 5:64 (Feb.) 1955.*

When you specify the Pfizer antibiotic of your choice *Stress Fortified* with the B-complex, C and K vitamins recommended by the National Research Council, be sure to write SF* on your prescription

antibiotics *Stress Fortified* with vitamins include:

Terramycin®-SF
Brand of oxytetracycline with vitamins
CAPSULES 250 mg.

Tetracyn®-SF
Brand of tetracycline with vitamins
CAPSULES 250 mg.
ORAL SUSPENSION (fruit flavored)
125 mg./5 cc. teaspoonful

℞
Terramycin-SF
caps #16
Sig: One capsule,
q.i.d.

The minimum daily dose of each antibiotic *(1 Gm. of Terramycin or Tetracyn, or 600,000 units of penicillin)*
Stress Fortifies the patient *with the stress vitamin formula* **recommended by the National Research Council:**

Ascorbic acid, U.S.P.	300 mg.	Calcium pantothenate	20 mg.
Thiamine mononitrate	10 mg.	Vitamin B_{12} activity	4 mcg.
Riboflavin	10 mg.	Folic acid	1.5 mg.
Niacinamide	100 mg.	Menadione (vitamin K analog)	2 mg.
Pyridoxine hydrochloride	2 mg.		

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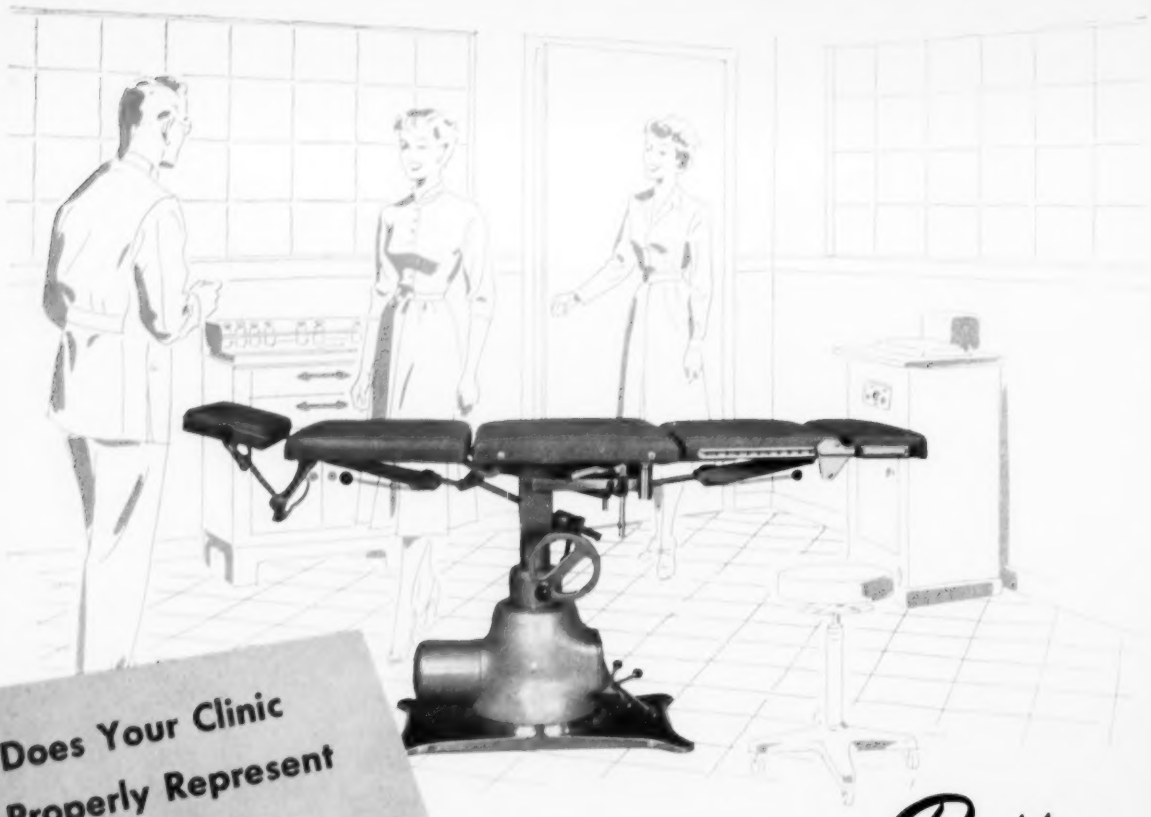

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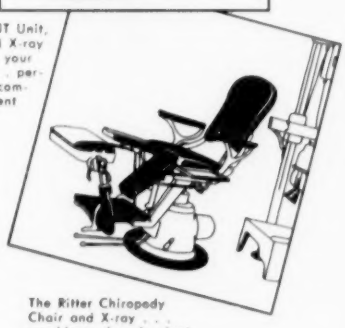
Ritter's ENT Unit, Chair, and X-ray . . . save your energy . . . permit more complete patient service.



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control sweating, itching, scratching, spreading of skin disorders

unusually effective in poison ivy dermatitis

- relieves even severe itching
- dries oozing lesions in 2 to 4 days

and rapid relief **in contact dermatitis, atopic eczema, dyshidrotic eczema, neurodermatitis and localized hyperhidrosis**

PRANTAL® methylsulfate, brand of diphemanil methylsulfate.

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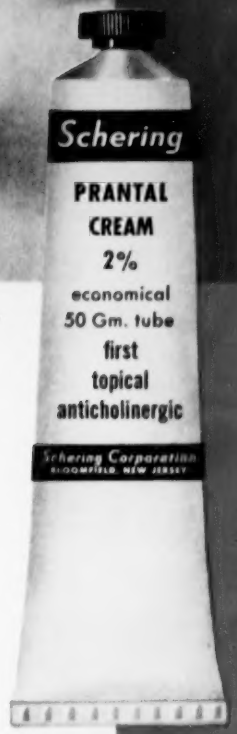

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Face laceration dressed with Aeroplast healed in four days.[2]

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Thoracotomy wound completely healed 13 days after operation and dressing with Aeroplast.[1]

Aeroplast dressing is peeled off like a glove 12 days after 2nd degree burn.[2]

Sprayed directly onto the lesion from an aerosol "bomb," Aeroplast forms a protective plastic film dressing over any body contour. Aseptic lesions remain sterile as long as the dressings are intact. Aeroplast dressings are impermeable to bacteria. To remove, Aeroplast is simply peeled off.

Rigler and Adams[1] dressed 110 operative wounds (including thoracotomies, laparotomies, inguinal hernias and miscellaneous lesions) with Aeroplast. "A single application sufficed in all but fifteen cases. No instances of systemic or clear-cut reactions were observed. Satisfactory results, with no evidence of erythema, infection, or necrosis were obtained in the majority of cases."

In 39 miscellaneous wounds dressed with Aeroplast (including appendectomies, open reduction of fractures, skin graft donor sites, lacerations, excoriation), Choy[2] reports infection in only one case, which promptly cleared with redressing, and uneventful healing in all others.

1. Rigler, S. P. and Adams, W. E.: Experience with a new sprayable plastic as a dressing for operative wounds, Surg. 36:792 (Oct.) 1954. (University of Chicago Clinics, Chicago, Surgical Service).

2. Choy, O. S. J.: Clinical trials of a new plastic dressing for burns and surgical wounds, Arch. Surg. 68:33 (Jan.) 1954. (Bellevue Hospital, New York, Third Surgical Division—Dr. John Mulholland, chief).

Supplied in 6 oz. aerosol-type dispenser through your prescription pharmacy or surgical dealer.

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Brand of trichloroethylene U.S.P. (Blue)

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FOR SELF-ADMINISTERED INHALATION ANALGESIA

IN OBSTETRICS

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■ Notably safe and effective

"Trilene," self administered with the "Duke" University Inhaler, under proper medical supervision, provides highly effective analgesia with a relatively wide margin of safety.

■ Convenient to administer

The "Duke" University Inhaler (Model-M) is specially designed for economy, facility of handling, and ready control of vapor concentration.

■ Special advantages

- Induction of analgesia is usually smooth and rapid with minimum or no loss of consciousness
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"Trilene" *alone* is recommended only for analgesia, not for anesthesia nor for the induction of anesthesia. Epinephrine is contraindicated when "Trilene" is administered.

"Trilene" is available in 300 cc. containers, 15 cc. tubes, and 6 cc. ampuls.

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induction is rapid...anesthesia smooth...recovery prompt
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ultrashort-acting intravenous anesthetic

Detailed information on **SURITAL** sodium (thiamylal sodium, Parke-Davis) is available on request.

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AMMENS' starch granules, evenly dispersed in talc, provide an absorbent coating on irritated skin. Oxyquinolin and zinc oxide, blended in the powder, help protect macerated crevices against bacterial invasion.

For skin comfort—especially in sweaty jobs or in hot weather→ advise your workers to keep a can of AMMENS close at hand.

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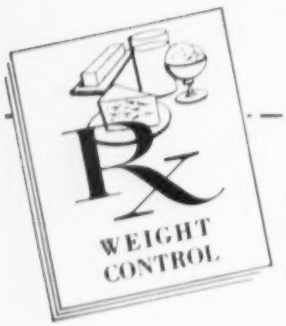
mother and baby doing well...



Control of weight gain through use of a nutrient-rich, moderate-calorie diet is a "must" for well-conducted prenatal care.

Severe complications of pregnancy appear to be less frequent . . . when a woman eats a good diet . . . is of average weight when she becomes pregnant . . . and gains approximately one-half pound per week.

Medical research provides evidence of a relationship between the type of food which a woman eats and the course and outcome of her pregnancy. More babies in good or excellent condition were reported found among the children of mothers whose diets during pregnancy were good or excellent than among those whose diets were poor. The ability of a mother to nurse her child also appears to be related to the quality of her diet during pregnancy.

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Dairy foods play an important role in this diet plan because of the high proportion of other nutrients in relation to calories which they provide. Their taste appeal and variety can add pleasure to eating.

Doctors! Send for the convenient booklet containing this basic diet plan. This plan will be useful in giving diet instructions to pregnant women of widely varying caloric needs. Where needed, modifications of the diet can be suggested.

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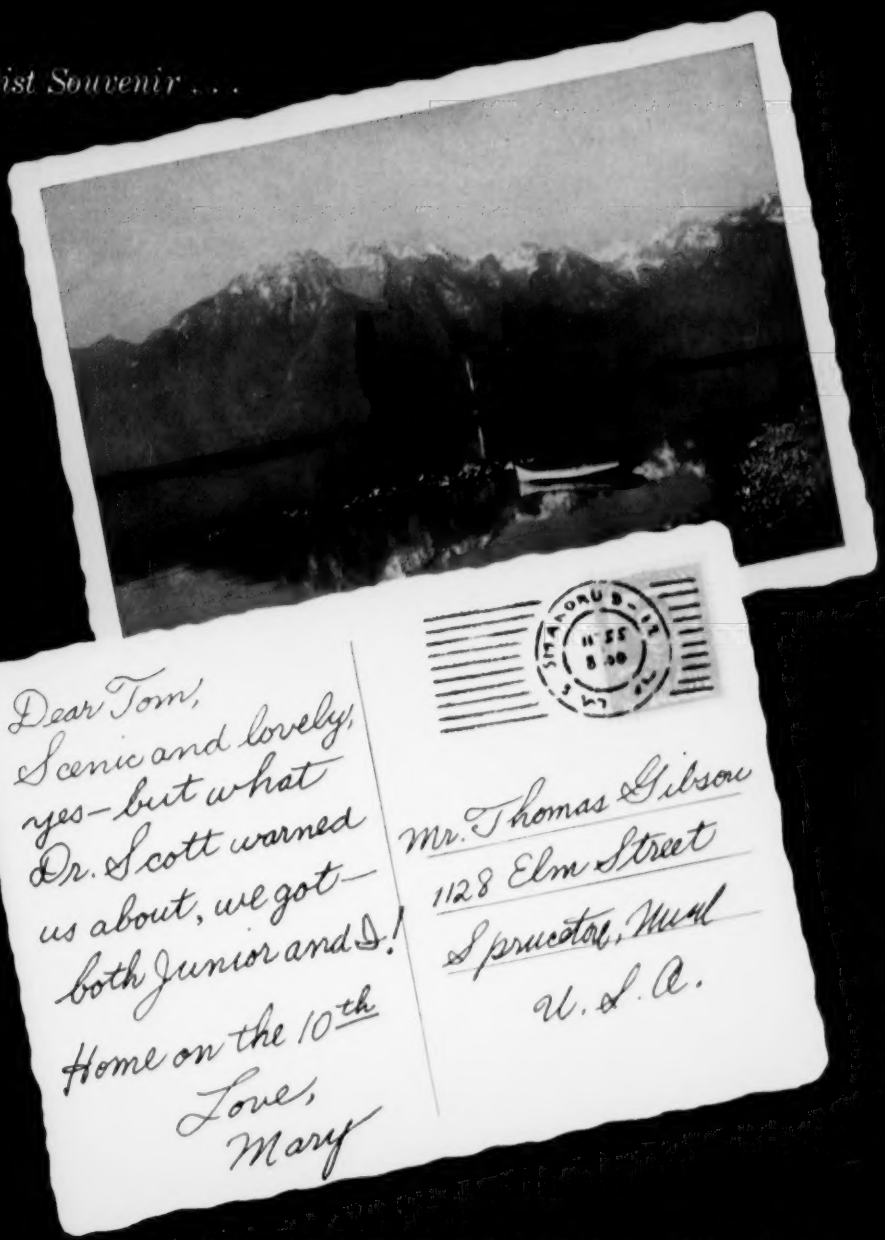

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To combat susceptible *infectious* forms, STREPTOMAGMA exerts potent antibacterial, adsorptive, and protective actions. Soothes the bowel, encourages normal stool development.

For common noninfectious diarrheas, prescribe KALPEC® pectin with kaolin in alumina gel.

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Dihydrostreptomycin Sulfate and Pectin with Kaolin in Alumina Gel

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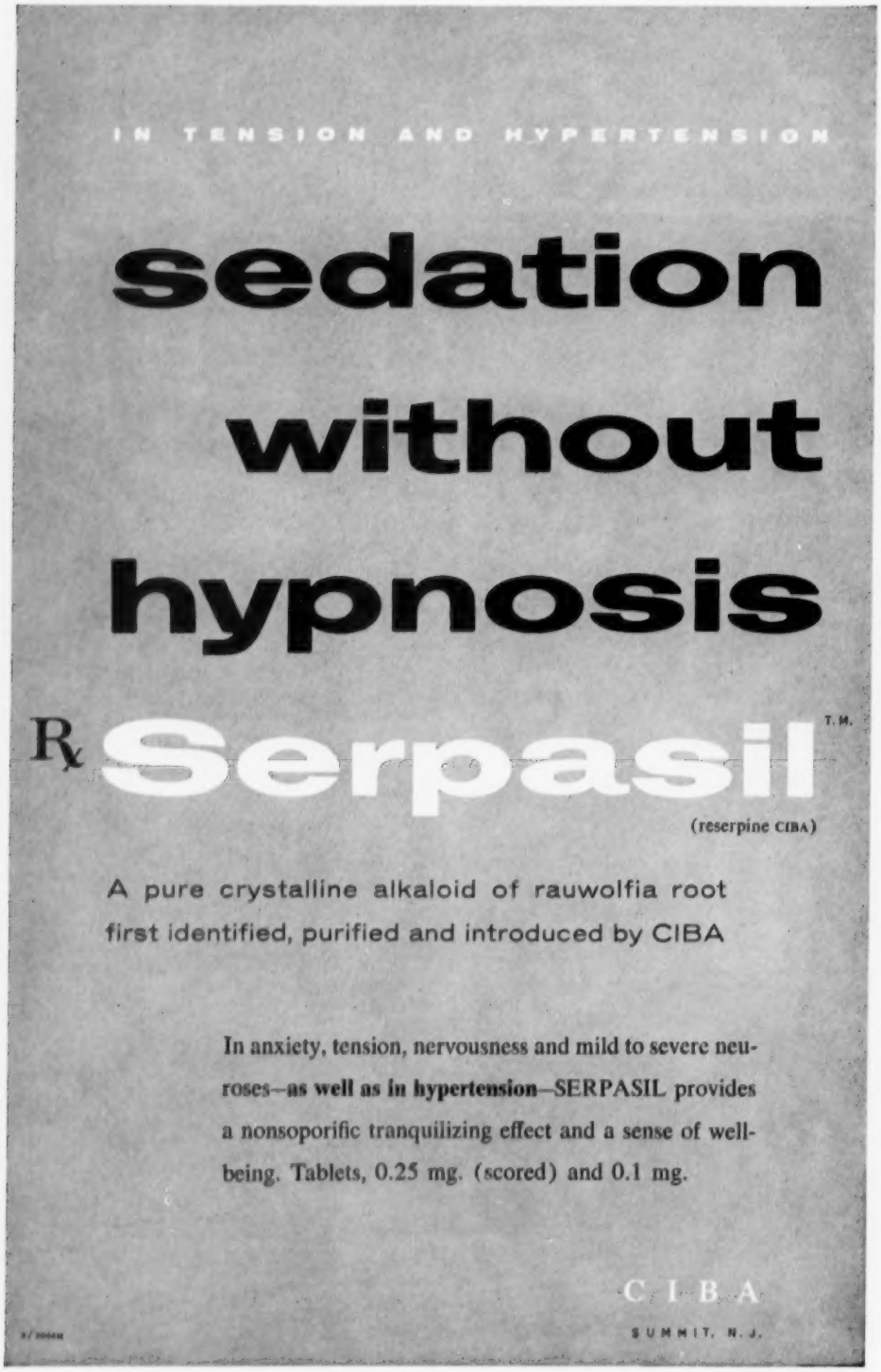
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sedation without hypnosis
℞ Serpasil T.M.
(reserpine CIBA)
A pure crystalline alkaloid of rauwolfia root first identified, purified and introduced by CIBA
In anxiety, tension, nervousness and mild to severe neuroses—as well as in hypertension—SERPASIL provides a nonsoporific tranquilizing effect and a sense of well-being. Tablets, 0.25 mg. (scored) and 0.1 mg.
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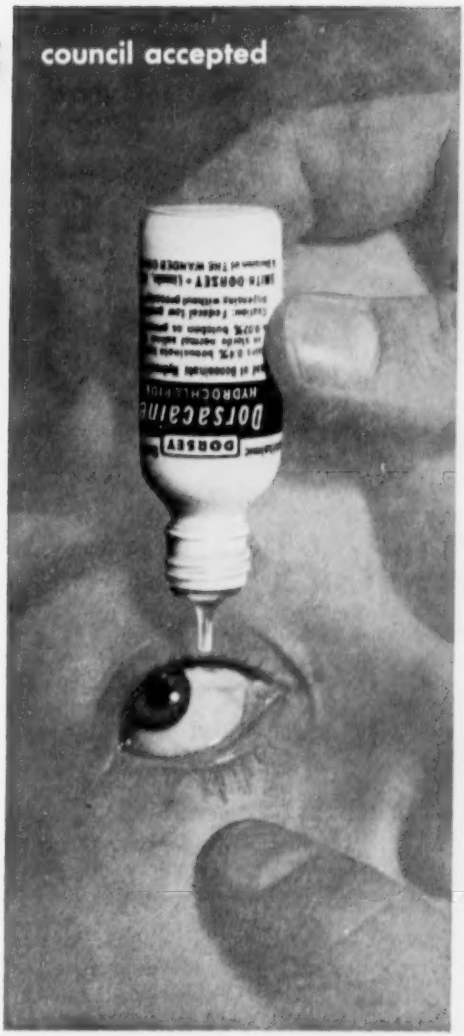
New! SERPASIL® ELIXIR
Each 4-ml. teaspoonful contains 0.2 mg. of Serpasil



new corneal anesthetic

rapid action and

short duration*

virtually **nonsensitizing**
no cases reported of dermatitis occurring in patient's eye or on hands of physician.

relatively **nonirritating**
does not sting or burn when dropped into the eye—changes in the corneal epithelium or hyperemia of the conjunctiva rarely occur.

Average dose: *for tonometry*, 2 drops. *For minor surgical procedures*, 2 drops instilled 3 times at 90 second intervals.

Supplied: sterile normal saline solution with 0.02% Butoben as preservative, and containing 0.4% Dorsacaine Hydrochloride (benoxinate hydrochloride). In ½ oz. plastic squeeze bottle with dropper tip which delivers uniform drops (approximately 45 drops per cc.).

*Schlegel, H. E., Jr., and Swan, K. C.: A.M.A. Arch. Ophth. *61*:663 (May) 1964.

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Safe, Rapid Therapy

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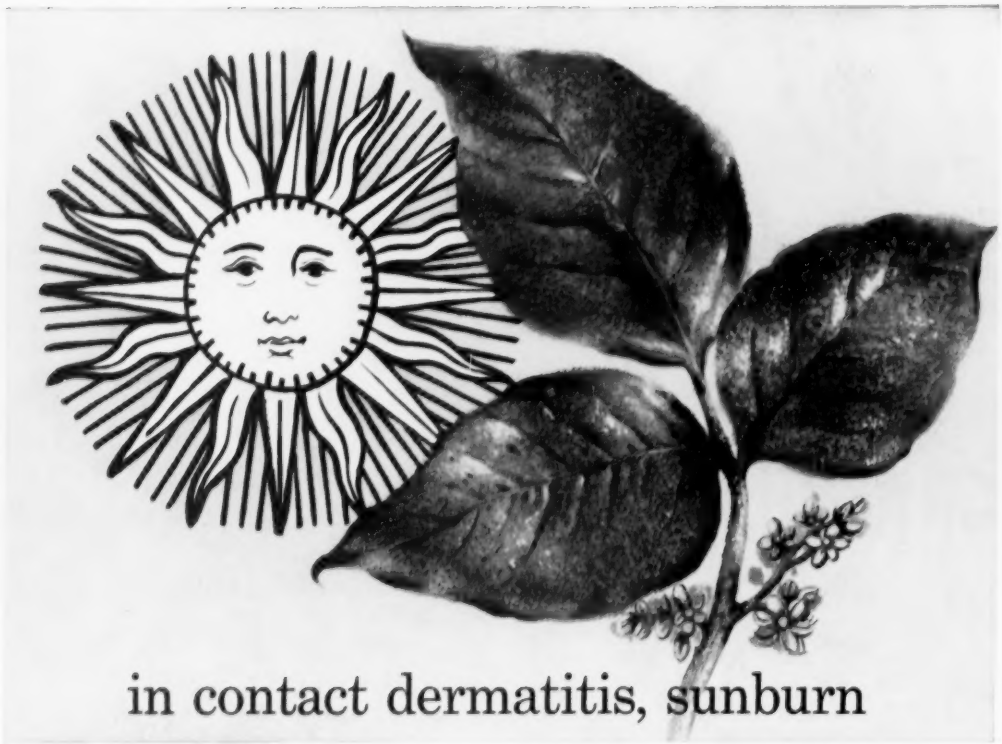

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INDUSTRIAL MEDICINE AND SURGERY

JUNE, 1955

Mortality Among Workers in Cigarette Factories

HAROLD F. DORN and WILLIAM S. BAUM
National Institutes of Health, Bethesda, Maryland

THE TERM, "tabacosis" was coined nearly a century ago to describe the pathological effects attributed to tobacco. The possibility of the existence of this disease has been discussed from time to time in medical literature but no convincing evidence has been produced to indicate that it is a serious health hazard.[1-3]

The most extensive investigation of mortality among persons engaged in the manufacture of tobacco products is that of the Kennaways based on a special analysis of mortality from cancer of the lung and larynx among men in various occupations in England and Wales during the period 1921-1932. They found that the mortality rate for lung cancer among tobacco manufacturers was 96% greater than the rate for all males, and that among tobacconists and their assistants was 75% greater.[4]

The reported association between the smoking of tobacco and cancer of the lung again has raised the question of whether workers engaged in the preparation of tobacco products, in particular cigarettes, have an increased risk of developing lung cancer. In 1952 with the cooperation of the American Tobacco Company there was initiated a study of the mortality of workers in cigarette factories located in Virginia, North Carolina, and Kentucky. Full-time employees working in the stemmery, prefabrication, and fabrication departments were included. The complete cooperation of the company was received in all phases of the study; special acknowledgment is due to Mr. H. R. Hanmer, Director of Research, for his assistance in assembling the data on which the study is based.

EFFECTIVE October, 1946, the American Tobacco Company initiated a comprehensive health service and group insurance program for its employees. The plan covers all full-time employees who have been employed at least one year. Seasonal and part-time employees are not included but these have the privilege of using the factory dispensary during working hours and are given medical care for injuries arising from work. Medical services for each factory are provided by either a full- or part-time physician who is available for consultation outside regular working hours as well. The medical services include outpatient care, home visits, and hospitalization when required.

All eligible employees are covered by group life insurance. Employees who leave the company are given a paid-up insurance policy. Persons who become unable to work are carried on the payroll on leave without pay. However, insurance is maintained by the company.

Information concerning the number of deaths and the cause of death among employees covered by the insurance program from October, 1946, through December, 1952, was obtained from the Metropolitan Life Insurance Company which underwrites the insurance policies. Additional information was obtained from company records. The number of person years of experience during this period was 70,532 for employees engaged in the manufacture of cigarettes.

For the purpose of this analysis the employees were divided into two groups: (a) those employed in processing cigarettes, and (b) all others. The first group comprises persons on the payroll of the following divisions and branches: Durham, Louisville, Reidsville Divisions, and Richmond Leaf Department, and Durham, Louisville, Reidsville, Richmond and Virginia Branches.

Table I shows the number of deaths separately for the two groups of employees from the opening of the insurance contract in October, 1946, until the end of 1952. The number of deaths and

TABLE I.
NUMBER OF DEATHS AMONG EMPLOYEES OF THE AMERICAN TOBACCO COMPANY, OCTOBER, 1946—DECEMBER, 1952

Year	Cigarette processing[1]	All others	Total
1946	15	5	20
1947	44	19	63
1948	65	31	96
1949	57	29	86
1950	46	30	76
1951	48	26	74
1952	63	26	89
Total	338	166	504

1. Includes Durham Division, Louisville Division, Reidsville Division, Durham Branch, Louisville Branch, Reidsville Branch, Richmond Branch, Virginia Branch, and Richmond Leaf Department.

percentage distribution by cause will be found in Table II. The only apparent difference between the two groups is the larger percentage of deaths attributed to cancer among employees not employed in the processing of cigarette tobacco. However the data in Tables III and IV showing the primary site of cancer do not suggest that there is any real difference in the type of cancer in the two groups of employees.

The mortality from (a) all causes of death, (b) all forms of cancer, (c) cancer of the respiratory system, (d) cardiovascular diseases, and (e) coronary disease among employees of the cigarette divisions and branches of the American Tobacco Company was compared with the mortality from the same groups of diseases of the population of North Carolina and Virginia, the two states where most of the employees work. Mortality rates based on deaths for the two years 1949 and 1950 were computed by age, sex, and color for the five groups of diseases for the combined population of the two states.

The age distribution of the employees engaged in the processing of cigarettes by sex and color was available for August 1, 1953. In addition, the total number of employees by sex and color was available for each year of the study period. The number of person years exposure during the 6.25 years was 70,532. This number was subdivided into age groups by sex and color separately by using the age distribution of employees on August 1, 1953.

THE AGE distribution of all employees of the American Tobacco Company was available for October, 1946, the beginning date for the group insurance contract. A comparison of the two age distributions indicates that no appreciable error is created by using the 1953 age distribution. If anything, the average age of employees during the study period was slightly lower than that on August 1, 1953. Consequently the expected number of deaths shown in Table V may be slightly too large. But this is not sufficient to affect the conclusions drawn from the data.

TABLE II.

NUMBER AND PERCENTAGE DISTRIBUTION OF DEATHS BY CAUSE FOR EMPLOYEES IN CIGARETTE[1] AND NON-CIGARETTE DIVISIONS, AMERICAN TOBACCO COMPANY, OCTOBER, 1946—DECEMBER, 1952

Cause	Number		Percent of total	
	Cigarette	Non-cigarette	Cigarette	Non-cigarette
Tuberculosis	17	5	5.0	3.0
Other infective and parasitic diseases	4	4	1.2	2.4
Cancer	44	38	13.0	22.9
Benign and unspecified neoplasms	4	2	1.2	1.2
Diabetes	8	6	2.4	3.6
Allergic and metabolic diseases	3	1	0.9	0.6
Vascular lesions of central nervous system	40	12	11.8	7.2
Other nervous system diseases	2	2	0.6	1.2
Cardiovascular diseases	121	57	35.8	34.3
Respiratory system	8	3	2.4	1.8
Digestive system	14	2	4.1	1.2
Genito-urinary	13	6	3.8	3.6
Pregnancy, childbirth	1	3	0.3	1.8
Congenital malformation	2	0	0.6	—
Suicide, homicide	16	9	4.7	5.4
Other and ill-defined causes	7	4	2.1	2.4
Accidents, poisonings	34	12	10.1	7.2
TOTAL	338	166	100.0	99.8

1. Includes Durham Division, Louisville Division, Reidsville Division, Durham Branch, Louisville Branch, Reidsville Branch, Richmond Branch, Virginia Branch, and Richmond Leaf Department.

TABLE III.

NUMBER OF DEATHS FROM CANCER BY SEX, COLOR AND PRIMARY SITE FOR EMPLOYEES IN CIGARETTE[1] AND NON-CIGARETTE DIVISIONS, AMERICAN TOBACCO COMPANY, OCTOBER, 1946—DECEMBER, 1952

Primary site	Cigarette				Non-cigarette			
	White		Non-white		White		Non-white	
	Male	Female	Male	Female	Male	Female	Male	Female
Buccal cavity and pharynx	2	0	0	1	3	0	0	0
Digestive organs and peritoneum	8	1	5	3	5	3	1	1
Respiratory system	3	0	1	2	2	1	1	0
Female genital organs	0	3	0	2	0	3	0	1
Male genital organs	0	0	1	0	1	0	0	0
Breast	0	1	0	2	1	4	0	0
Urinary organs	1	0	0	1	1	3	0	0
Skin	0	1	0	0	0	1	0	0
Brain and central nervous system	2	0	0	0	0	0	0	0
Other and unspecified organs	2	0	0	0	4	1	0	0
Leukemia	2	0	0	0	0	0	0	1
TOTAL	20	6	7	11	17	16	2	3

1. Includes Durham Division, Louisville Division, Reidsville Division, Durham Branch, Louisville Branch, Reidsville Branch, Richmond Branch, Virginia Branch and Richmond Leaf Department.

TABLE IV.

NUMBER AND PERCENTAGE DISTRIBUTION OF DEATHS FROM CANCER BY PRIMARY SITE FOR EMPLOYEES IN CIGARETTE[1] AND NON-CIGARETTE DIVISIONS, AMERICAN TOBACCO COMPANY, OCTOBER, 1946—DECEMBER, 1952

Primary site	Number		Percent of total	
	Cigarette	Non-cigarette	Cigarette	Non-cigarette
Buccal cavity and pharynx	3	3	6.8	7.9
Digestive organs and peritoneum	17	10	38.6	26.3
Respiratory system	6	4	13.6	10.5
Female genital organs	4	4	9.1	10.5
Male genital organs	1	1	2.3	2.6
Breast	3	5	6.8	13.2
Urinary organs	2	4	4.5	10.5
Skin	1	1	2.3	2.6
Brain and central nervous system	2	0	4.5	—
Other and unspecified organs	3	5	6.8	13.2
Leukemia	2	1	4.5	2.6
TOTAL	44	38	99.8	99.9

1. Includes Durham Division, Louisville Division, Reidsville Division, Durham Branch, Louisville Branch, Reidsville Branch, Richmond Branch, Virginia Branch, and Richmond Leaf Department.

TABLE V.
OBSERVED AND EXPECTED NUMBER OF DEATHS FROM SPECIFIED CAUSES AMONG EMPLOYEES OF THE CIGARETTE DIVISION, AMERICAN TOBACCO COMPANY, OCTOBER, 1946—DECEMBER, 1952

Cause	Expected number	Observed number	Ratio Expected to observed
All causes	500	338	1.48
Cancer—all forms	60	44	1.36
Cancer of respiratory system	7	6	1.17
Cardiovascular diseases	259	161	1.48
Coronary disease	81	65	1.25

The number of employees of each age, sex, and color group was multiplied by the corresponding death rate for the population of North Carolina and Virginia giving an expected number of deaths. The results are shown in Table V.

The expected number of deaths from respiratory cancer is essentially the same as the observed number. The expected number of deaths from cancer—all forms—is 36% greater than that observed while the expected number of deaths from all diseases combined is 48% greater than that observed. These data show that the mortality rate among employees of the cigarette division of the American Tobacco Company compares favorably with that of the general population of Virginia and North Carolina.

This is not surprising in view of the medical care program provided by the company for its employees.

In addition to the six deaths from cancer of the respiratory system, there was one death of a Negro female attributed to pulmonary emphysema. The death occurred in the emergency room before a diagnosis could be established, and an autopsy was not done. Even if the cause of death were lung cancer, for which there is no evidence, it would not change the conclusions of this study.

Information concerning the occupation and length of employment of each of the employees dying from respiratory cancer was reviewed. There was no concentration of deaths in a single group of workers.

These data did not suggest the existence of any special hazard.

Cardiovascular diseases also are reported less frequently as a cause of death for employees of the cigarette division of the American Tobacco Company than for the general population of North Carolina and Virginia. Included in this group are diseases of the cerebral arteries and diseases of the circulatory system as shown in the Sixth Revision of the International Statistical Classification of Diseases, Injuries, and Causes of Death.

An exact comparison of mortality due to coronary disease in the two populations is not possible owing to differences in the method of classifying diseases of the cardiovascular system in the Fifth and Sixth Revisions of the International Statistical Classification. Prior to 1950 causes of death were coded according to the Fifth Revision; beginning with 1950, the Sixth Revision was followed.

The data in Table V show that the expected number of deaths from coronary disease exceeds the observed number by 25%. This almost certainly overstates the difference. In addition to the 65 deaths shown in Table V as due to coronary occlusion or thrombosis, arteriosclerotic heart disease and infarction of the myocardium, there were 22 deaths coded to No. 93, Diseases of the Myocardium, of the Fifth Revision. At most, about 90% of these might have been assigned to coronary disease by the Sixth Revision.

The addition of 20 deaths to the 65 shown in Table V gives 85 observed deaths compared with 81 expected deaths, or a difference of about 5%. There seems no reason to believe that mortality rates from coronary disease among employees of the cigarette divisions of the American Tobacco Company are greater than those of the general population of North Carolina and Virginia.

THERE is no evidence that the lower mortality of the workers in cigarette factories can be attributed to rapid labor turnover or to dropping seriously ill employees from the payroll. Employees who are unable to work eventually are carried on the payroll as on leave without pay but remain covered by insurance so that their deaths are included with those of other policyholders. On August 1, 1953, 54% of male and 44% of female employees had worked for the company at least 10 years.

The results of this study show that the total mortality rate of employees engaged in processing cigarettes for the American Tobacco Company is definitely lower than that for the general population of Virginia and North Carolina. This is true for all causes, for cancer, and for cardiovascular diseases. The death rates for respiratory cancer and for coronary disease among employees of the American Tobacco Company do not differ appreciably from those of the general population.

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Occupational and Non-Occupational Stress in Relation to Employee Health

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THE MENTAL health of employees in all job classifications is of increasing importance as an essential of continued effective job performance. Most of the mental health problems fall within the area of minor emotional disturbances and are not truly psychiatric in nature. Much can be done in the field of mental or emotional health by supervisors and personnel and industrial relations staffs in their day-to-day contacts with employees. Some of the problems must be handled by the medical staff; only a rare number call for a psychiatrist. Any physician with some interest in psychologic or emotional reaction can detect most of the cases in industry where there is an interplay of stress, either on an occupational or a non-occupational basis.

There is some question as to the advisability of formal programs for the psychologic or psychiatric evaluation of employees. In formalizing psychologic or psychiatric service in industry, there is a tendency to overestimate or overextend the area of the employee population needing this service. Only a small percentage are candidates for psychologic evaluation and an even smaller group for psychiatric evaluation. From 85 to 95% with emotional difficulties, occupational or non-occupational, can find the solution of their problems either through supervision, the industrial physician, the private physician, family, friends, relatives, or a minister. Any employee who can solve his emotional conflict through these has no business in the office of a psychiatrist or a psychologist.

We do not mean, however, that the need for psychologic and psychiatric services in industry is unimportant to the relatively few that need them. But if we overemphasize the need for these services, we may forget the need for a good job of human relations as a preventive measure and as an important responsibility of supervision or management. Also, there is the hazard of psychoanalytical dissection of too large a number of employees into "nuts and bolts," which when reassembled makes the employees so introspective that both employees and employers suffer. There is a further danger of relegating selection methods for appointment and promotion to some place outside their proper responsibility in management.

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Psychosomatic or mental health problems can be considered at the time of periodic examinations of employees and on special referrals to the Medical Department by foremen and supervisors who may suspect that the employee is having emotional difficulties on the job. By recognizing each such employee as a complete individual with a home, family, and financial worries, as well as problems related to other employees and supervisors, the majority of these cases can be handled by analyzing the stresses with the individual, and attempting to help him gain an understanding of and insight into his behavior.

THIS AGE has been called the "age of anxiety." There is a question, however, whether we are dealing with a greater problem of anxiety because of the stresses and strains of present-day life, or whether there has been an increased recognition of this form of reaction. No doubt anxiety has been a part of human experience since the beginning of man. On the other hand, man never has found it necessary to face the fears, tensions and hazards that he meets today.[1] Periods of anxiety are certainly the experience of every normal individual who lives in any large civilized community, especially if he must drive to and from work. This normal type of anxiety is easily discernible and, after discussion and explanation, is also apparent to the employee.

In some instances it is obvious that we are dealing with anxieties and fears and tensions based on events or experiences in infancy, childhood, and adolescence. These are the more difficult cases, and the employee is not aware of the emotional basis for his anxiety. Frequently the denial of any conflict or stress is most vigorous in the area where the individual has most difficulty. The employees frequently will challenge the physician to find an organic basis for their complaints, and will go from physician to physician shopping for a diagnosis more acceptable and which will further mask the area of difficulty. This type of reaction is found not only in the anxiety states, but also in most other types of emotional disorders.

In questioning the employee regarding his past experiences, dating back to childhood, we frequently find a strong sense of guilt due to antagonism toward one or the other parent. This may have been spawned in marital difficulties of

the parents. We also find guilt due to suppressed anger and resentment toward brothers and sisters who early in life may have frustrated or intervened in the child's happy relationship with its mother or father. Older male and female employees will show evidence of guilt occasionally over financial or other responsibility toward an aged parent. The employee may have compensated for suppressed resentment or hatred for years. In fact, his compensation may have been in the form of excellence in cultural and educational pursuits and human relations. Sooner or later this compensatory mechanism is interrupted by various stimuli or events (including cardinal success or failure), and the sense of guilt rises to a higher level in the subconscious and manifests itself in anxiety, depression or fatigue.

Plato, discoursing on physicians in the art of healing, advises them that "there is no proportion or disproportion more productive of health and disease, and virtue and vice, than that between soul and body." He states that the soul "convulses and fills with disorders the whole inner nature of man"; and when man is eager in the pursuit of learning, studying, teaching, disputing in private or in public, disorders in the soul may dissolve the composite form of man and cause illness. He states "we should not move the body without the soul or the soul without the body."[2] We see these principles in action in cases of anxiety which is based on guilt, and occasionally an employee will volunteer information suggesting guilt or conflict over spiritual matters.

In dealing with anxiety of this type, we come closest to the concept of the "whole man," i.e., the consideration of man as:

1. One psychic whole.
2. One single complete structure.
3. One social entity.
4. One transcendent whole, that is to say, a human being who by nature "goes toward the good."

We have come to look upon the human being organically as a mechanism of great precision. There is a more delicate precision, however, in the relationship between the psychic faculties and function and the organic mechanism, and this relationship produces the whole being.[3] We have found that anxiety, guilt, fears, and phobias based on this concept of the whole man are better handled outside the office of a psychologist or psychiatrist.

IT IS BEST at the level of the industrial medical program not to pursue this type of analysis too far, but far enough to ask the employee to consider the factors discussed as a potential cause of his difficulties, with a view to taking appropriate action in their solution. Many of these employees return to the religious practices of their childhoods and obtain a successful solution.

The manifestation of a fatigue state is second only to that of anxiety in connection with stress symptoms on periodic examinations. The employees go to bed tired, wake up tired, complain of a tired feeling on the job, and if they are doing sedentary work often make the statement, "I cannot understand why I am tired, because I never do anything." Of course, we have many employees in arduous-duty occupations who display real physiologic fatigue due to physical exertion. However, the common type of fatigue we see as a complaint on physical examination is usually not due to physical work, but to mental effort or emotional conflict.

Fatigue, based primarily on emotions, is most difficult to discuss with an employee. The efficient employee may have worked for years, doing more than his share of the job, with little resulting fatigue. He now frequently complains that he must have some mortal disease, since he always feels tired. By listening to him for a time, and after ruling out the possibility of organic disease, it is obvious that his fatigue is based on conflict over his work or family problems.

Fatigue is present in most chronic states of organic disease. If it occurs solely as a manifestation of organic disease, the disease is usually severe or advanced.

We usually find, after ruling out the possibility of organic disease that the majority of cases of fatigue fall into the following categories:

1. Lack of incentive or interest on the job.
2. Lack of aptitude, skill, and cultural or educational background for increased responsibilities.
3. Imbalance between work and play.
4. Lack of physical exercise when the employee is in a sedentary occupation.
5. Emotional conflict with lessened interest in the environment, preoccupation with self-worries, irritability, diminished powers of concentration, and a physiologic withdrawal into dormancy. These cases frequently occur in older male employees and may be an expression of a concomitant diminished endocrine activity.

Fatigue can appear as a defensive method in meeting psychologic needs of the individual. These needs may go back into childhood, and the individual may have been conditioned to this fatigue state by too much concern on the part of an anxious parent who may have overemphasized the need for sleep and for avoiding hard work. If you tell a child long enough that he needs more rest, that he looks tired, and if you ask him long if he feels tired, and if he is working too hard, this child as an adult may revert to this conditioning. This is especially true later in life if he is faced with responsibilities beyond his capacities. The tendency is to retreat with the complaint of fatigue and let someone else "take over." We have some rather uncomplimentary names for this type of individual in industry.

The opposite can occur as a result of childhood conditioning. The adult may use fatigue to satisfy his ego. On one hand he seems to be working so hard; on the other everyone asks him "to slow down."[4]

Some of these causes of fatigue can be handled by counseling at time of examination. Most require more searching psychoanalytical techniques and are referred to the private physicians.

WE NEED mention only briefly symptoms that are evaluated on the basis of the close relationship of the psyche and the soma. It is a well-accepted concept that anxiety and emotional conflict often are resolved by somatic expression, and in these cases the skin, the heart, and the gastro-intestinal system act as seismographs of emotional earthquakes in the usually smooth pattern of relationship between the psyche and the soma. This is especially true with regard to symptoms and findings related to the gastro-intestinal system. They are not peculiar to any group of employees, and are found as frequently in non-executives as executives. Fear, frustration, or conflict at an occupational level are the common stresses in these cases. Two or more employees, working under the same supervisor, may have the same psychosomatic complaints, and these frequently resolve to a peptic ulcer.

Many cases of hypertension among employees have a pattern of ambivalent feelings toward fellow employees and supervisors.[5] These employees may display a high degree of calm and equanimity on the job, but may burn with a good deal of repression of emotion. There is no intention here to attribute the cause of hypertension to strictly psychodynamic reactions. It is apparent in these cases, however, where there is a tendency for a higher than normal level of blood pressure and for the individual to reflect his ambivalent feelings periodically at even higher levels in systolic and diastolic.

The psychodynamics that we see with reference to hypoglycemia agree with those of Portis and his colleagues.[6] This type of fatigue syndrome appears to represent an imbalance in the autonomic nervous system. It is frequently associated with individuals with high speed drives, low "fuel" intake, who are heavy smokers. In my experience, these individuals, in most instances, are very capable employees who eat too little, but smoke and drink too much. A few compensate for feelings of insecurity and inadequacy. There is a need for further research into physiologic response resulting from emotional conflict or anxiety.

We approach most of these cases through interview and encourage the employee to ventilate his fears, frustrations, and anxieties, either at the occupational or non-occupational level. If his problem involves fellow employees or superiors he is reassured with regard to the confidential nature of his communication.

A satisfactory home and occupational situation has been mentioned earlier as one of the conditions for health. In discussing psychosomatics and mental health it was pointed out that conflict at an occupational or a family or domestic level can play a part in the development of stress disorders. This did not preclude anxiety, conversion disorders, depressions, and hypochondriasis having roots in infancy or childhood, which in themselves can be the cause for conflict at an occupational or domestic level and could be induced by a host of stresses later in life. We are mainly concerned here with stresses observed in adults at the time of periodic examination and relating to the employee as a complete or total individual with home, family, and financial worries: (1) an individual who may be placed in a job either above or below his capacities; (2) an individual who may have problems related to other employees or supervisors.

It is difficult for an industrial physician or a nurse to inquire tactfully into the employee's family problems, but it should not be any more difficult than in private practice if the industrial physician establishes proper confidential relationships with the employee and skillfully stimulates him, through the interview to "lead in" with pertinent information.

We find that many family or marital problems are based on a wrong concept of marriage from a psychologic, economic, theologic, and human relations point of view. Many employee problems are found to originate in the family situation; eventually, however, the employer bears the brunt of marital conflict. We cannot pose as "peacemakers" or as a "domestic relations court," but by listening with a sincere interest and recognizing the interplay of family stresses, we can frequently give the employee an insight as to how his family problems are affecting his behavior on the job. Admittedly, the employer's interest and responsibility for the employee's private affairs have definite limitations. No employer should risk the hazard of becoming labeled as either too "nosey" or too paternalistic, unless the employee's private affairs become a potential job or public relations problem.

RESPONSIBILITY for proper selection, job placement, and promotion is another matter, and here the employer should have full responsibility.

Beginning with the era of Frederick Taylor, industry has been presented with a large number of psychologic techniques for judicious selection, placement, and promotion of employees. Many of these have been of great value in certain types of occupations. Some have had shortcomings far exceeding benefits hoped for by the authors of the techniques or methods. In any event, the results of unfitness for work are seen frequently in an industrial Medical Department. Failure to make good on the job causes serious maladjustments and personality changes in employees.

We see many cases of fatigue and psychosomatic complaints because of unfitness for the job. These employees can be so frustrated at the job level that it can poison their domestic and social relationships. The determination of fitness for work is important, therefore, not only from the standpoint of the cost of incompetence to the employer, but also in the interest of the employee's health and welfare.

We have no proposal that we or any other Medical Department in industry should take on batteries of psychologic testing material and then offer management a panacea for this problem. Rather our part is to find occupational incompatibilities by skilled interview when it is obvious that these incompatibilities are affecting the

health of the employee. We then try to give the employee an insight into his real interest and abilities so that he himself can decide whether certain economic benefits of his present job are are important as his future health and welfare. The worker is the one to decide if he is willing to pay the price of staying in the wrong job. Of course, if later his health is affected to the point where he becomes inefficient and represents a hazard to himself, to his fellow-workers, or to the company, then the company has a moral responsibility to make the decision on reassignment.

All psychologic techniques have proved to be ancillary measures in the selection and placement of employees. There is still no substitute for the evaluation of a prospective employee or an employee by a capable supervisor who knows his own and the employee's job and is willing to make an objective evaluation, using ancillary psychologic techniques when necessary. The skilled interview is by far the best technique we have found to date. In the hands of management or supervision, this technique will lighten the burden of the industrial Medical Department considerably in handling the "round pegs" in "square holes."

At the time of periodic physical examination we see evidence of stress in employees based upon their problems related to other employees and to supervision. It is obvious in these cases that the worker has developed an attitude of resentment which is affecting his health.

THE WHOLE field of human relations has been of much interest to industry since the Hawthorne experiment.[7] Thus far there is no reliable method of measuring human relations or employee attitudes in industry. When we consider the disastrous effects of frustrations and fears, due to human relations problems, I believe that the importance of arriving at some sort of human relations index in industry is apparent. No direct attitude, survey or program can accomplish this. We have no concept as to the amount of productive energy dissipated on the job because of conflicts in human relations. These conflicts can lead to labor unrest, and conceivably could lead to self-destruction of a company. They are reflected economically and politically in a community. Any group schism between management and labor is the sum total of individual schisms among employees and supervisors and foremen.

The most valid approach so far to this problem has been through the concept that "people act in what they believe the best interests of themselves, their families, and others whose welfare they have at heart." For an employee to be receptive to another employee, or to a supervisor, or to any group of employees, he must first seek proof that his self-interest is being served. He thinks and acts in terms of the benefits, and he expects the company, his fellow-employees, his supervisors and his union to bring them to him. If he feels that the company is unwilling or unable to secure these benefits, he will seek leadership outside of company management. This also would apply to his relationship with a supervisor, another employee, or a union. Any appeal to a worker or a group of workmen to listen to benefits involves emotion movers which also must be based on reason (coming from within the person making the appeal). There can be no quackery in these emotion movers if they are to succeed in gaining favorable attention.

Employees also seem to be governed by the "need concept" which goes beyond usual material needs for food, clothing, and shelter, and includes emotional security, recognition, or a feeling of "belonging" or being identified. Many of the conflicts in matters of human relations that we see have a possible solution in the above concepts of employee incentives. These concepts hold great promise in the prevention of fears, frustrations and anxieties on the job, and add immeasurably to employee health and happiness.

IN THE Medical Department's province, we feel that human relations problems must be treated on an individual basis without embarrassment to the employee, his fellow-workers, or supervision. It is in this field that the Medical Departments acts as an important confidential communications channel.

We try informally to instruct the employee having human relations difficulty to handle his conflict in a creative manner without suppressed rage or anger.[8] Often in discussing the situation, he is able to rationalize the conflict from the standpoint of its cause. We encourage him to keep his perspective, and his sense of humor, and to see the object of his anger as a fellow human being who may have problems of his own, which could explain his manner or conduct on the job.

SUMMARY: By considering an employee as a total or "whole being," we have been able to assist and counsel him on problems of mental hygiene for which he often hesitates to seek counsel from other qualified sources. As a result, the incidence of "nervous breakdowns" or severe disabling psychoneuroses among employees in this company has diminished 25% during the six-year period 1948-1954. Through being shown an interest in their emotional problems, employees receive a real feeling of "belonging" in their work with the company.

There has been a reduction in explosive human relations problems due to emotional upsets. Industrial accidents due to emotional problems also have been fewer. The company has another channel of communications with employees, and the trained observation powers of medical personnel are available to management in spotting personnel and human relations problems. By showing a concern for employees as individuals, the company benefits in improved morale. The management has been able to avoid errors in the efficient utilization of personnel, in some instances, as a result of reliable evaluations of employee emotional status supplied by the Medical Department.

The type of communication involved in sounding out conflict or mental stress often is difficult in the busy private practitioner's office. Frequently the problem is first brought to light in the Medical Department. By transmitting this information to the private physician, we assist him in his communication with the patient. He can benefit by being apprised of occupational and nonoccupational factors of which he may not have been aware.

There is a reduction in the number of disabling neuropsychiatric cases in the community, and this decreases the number of families suffering economic losses. In addition, counseling relating to mental health at the time of periodic examination frequently spares already overcrowded psychiatric hospital facilities.

CONCLUSION: By looking at the employee with the "whole man" concept, and by giving as much consideration to environmental stress on and off the job as to organic health, industrial physicians and nurses can improve human relations in a plant, reduce the number of disabilities characterized first by functional and later by organic disorders, and decrease the number of accidents due to emotional disorders. These are real contributions to the betterment of plant and community health and to the betterment of labor relations in industry.

This field of endeavor represents the greatest challenge to the field of preventive medicine in industry.

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Little Strokes

IN MANY cases a man's employers or partners need to know quickly that he is never likely to work again. Then they can retire him with a pension. Many a man who has lost his drive and skills should be retired quickly, before he wrecks the morale of the department. This is often a tremendous problem in business firms. Often, when a man owns his own business, the family ought to know that he is not likely ever to be of any use in the office. They must then decide quickly what is to be done with the business and the people who work there. To show what a physician often needs to do in these cases: a man of 55 years, with his three sons, had for years done well with a factory making women's dresses. He suddenly lost his old business ability and good sense and actually refused to let the designers bring out new styles. Naturally, in two years he had wrecked the business. His sons, baffled, exasperated, and unable to sell the out-dated product of the factory, quarreled with their father and left him. The minute I saw the man, with his dull face and his slowed-up mind, I drew from his wife the story of a pretty big stroke without paralysis or aphasia. When I got the patient to see what had happened to him, I talked him into turning the business entirely over to his sons, and then I talked them into coming back. Within a year they had the factory in production again.

—From "The Little Strokes," by WALTER C. ALVAREZ, M.D., in *J.A.M.A.*, April 2, 1955.

Administrative Medicine—Necessary Component of Industrial Health

THE C. O. SAPPINGTON MEMORIAL LECTURE

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IT IS A DISTINCT honor and privilege for me to be able to deliver the second C. O. Sappington Memorial Lecture. The subject of my lecture, "Administrative Medicine," seems to me to be in keeping with the high aims and ideals for service in health as typified by the progressive thinking and planning of Dr. Sappington.

Three years ago a new specialty in medicine was officially recognized with the establishment of the Institute of Administrative Medicine by the Faculty of Medicine of Columbia University. Prior to this time there had been a number of well-known medical administrators serving the health field of the nation but there had never been major interest on the part of a university in developing education in administration in order to improve the leadership in broad phases of health. Prior to this, universities had taught administration in schools of public health to those who were to become the leaders in public health. More recently, 13 universities in the United States have taught hospital administration. Columbia University was one of these latter; in fact it inaugurated the third course in hospital administration to be established in the country.

The establishment of the Institute of Administrative Medicine was not done just in order to develop something new; it was set up mainly because of the great interest of Dean Willard C. Rappleye and other members of the Faculty of Medicine at Columbia University. This interest was the result of study on ways and means of providing adequate health care of all sorts for the people of the United States. A great deal has been written about the necessity of providing health care for everyone, and a great many experiments have been carried out in various phases of the health field in order to accomplish this purpose. Often when this happens a good idea becomes useless because no one will accept it and coordinate it to other aspects of the health field.

The Faculty of Medicine at Columbia felt that one of the important things basically lacking in the field of health was leaders who were trained well enough in administration to be able to lead through coordination and education the many aspects of health. In setting up the Institute of Administrative Medicine, it was stated that "medical services in this country are undergoing a rapid evolution toward making available to the entire population in every section of the country modern, high-quality health services of every description." In this connection the problems of the aging population and of chronic degenerative diseases were mentioned; the problems and care resultant from extensive medical administration; the continual problems stemming from increased scientific knowledge in the diagnostic and therapeutic fields; the ability of the public to finance their care through the establishment of prepayment plans of various types; the problem of coordination of ambulatory or outpatient services; hospital care and home care programs; the better coordination of medical education and the education of the other professions of health with the necessities of providing a total health care program for our people.

The Institute of Administrative Medicine of Columbia University has been created to carry out studies and instruction in the several fields before mentioned. It is organized within the framework of the School of Public Health. The programs of medical education, research, and hospital services at the Columbia-Presbyterian Medical Center and in the various hospitals affiliated with Columbia University in New York and the vicinity provide admirable facilities and personnel for the study of many features of comprehensive medical care. The Institute of Administrative Medicine of Columbia University recognizes the following five major fields of activity in which it is preparing to develop administrative leadership: (1) Hospital Administration. (2) Prepayment Medical Care. (3) Public Health Administration. (4) Industrial Medical Administration. (5) Medical School Administration. The Institute of Administrative Medicine took its first students in the fall of 1953. It is organized around the course in hospital administration which is the basis of the educational work in administration.

Presented at the Fortieth Annual Meeting of the INDUSTRIAL MEDICAL ASSOCIATION, Buffalo, April 26, 1955.

IN ORDER to understand the importance of administrative medicine as a necessary part of the development of health services, it is probably well to think of the rapid development of scientific medicine and from this the rapid development of many types of health institutions. With the development of the high level of scientific medicine, there has been the rapid development of specialization in medicine. We have at the present time 19 specialty boards which have set up standards and give examinations to measure the competency of medical men in various specialties of medicine. Most of these specialties are based upon the well-known specialties of medicine, but administrative medicine, like industrial medicine, is a specialty which has grown up not so much to teach medical men how to handle certain types of diseases but rather to develop medical men who are interested in the economic and social aspects of health for a great group of people. In each of these there will be found most all of the other specialties of medicine.

At the time of the development of administrative medicine, there were found several distinct phases of health care being operated under standards set up by each of these groups and often without particular reference to or coordination with other groups in the whole field of health. There are, of course, the departments of public health that are basically and officially interested in preventive medicine. These people have done a fine job in controlling the ravages of communicable disease; in improving conditions for maternal and child health; in developing adequate sanitary controls of our food, water, and sewage disposal systems; but unfortunately, this has been done in the presence of a rather definite fence erected between it and curative medicine with many people in the curative medicine field looking askance at some of the things being done by their brothers in the public health field and *vice versa*.

Curative medicine on the other hand is in the midst of a rapid evolution which has been brought about because of the rapid specialization. In most parts of the country we are still trying to practice medicine in the same way we practiced it when there was no need of specialization. The medical profession has not developed any definitely understood and workable plan for the relationships that should exist between the family doctor and the specialist. At the present time there is a considerable controversy going on as to whether there needs to be a family doctor at all and, if so, how should he be prepared; also, what relations should there be between his family practice and the practice of properly qualified specialists? There has been a tendency to suggest that there is much too much specialization and that we ought to go back to the old days of the family doctor. Yet, many specialists believe that the family doctor does attempt to do those things which he should not have done and therefore there is no need for him to exist any longer. It appears to me that it is this problem of the unrecognized relations between various types of practitioners in the field of medicine that is holding back more than anything else the advancement of properly organized group practice arrangements and centers. It is one of the problems that will have to be worked out in the near future before we can bring the doctor into a real place as a leader in the establishment of complete and adequate health services.

The evolution of the hospital as an essential part of the health picture is also as incomplete as that of the medical profession. Hospitals changed rapidly from institutions which took care of a small percentage of the sick to institutions equipped with all of the latest scientific facilities for diagnosis and treatment of disease and where a great bulk of the sick people of the country are now taken care of for the most serious parts of their illnesses. Hospital medical staffs and hospital boards of trustees and administration have failed to develop strong leadership in their part of the health picture. They are attempting now through the recent establishment of the Joint Commission on Accreditation of Hospitals to set up adequate medical staff-hospital relationships, and to set up for the medical staff the responsibility of the profession for adequate medical care and for its measurement. It is gratifying to note that in this connection there has been a tremendous increase in the number of hospitals that have been approved by the Joint Commission in the last couple of years.

In connection with this, it is interesting to know that the American Psychiatric Association became interested in the use of the approval standards of the Joint Commission for the many psychiatric hospitals operating in the country. Last year their inspectors, using the standards of the Joint Commission, measured a fairly large number of mental hospitals and discovered to everyone's chagrin that only six were qualified to be approved. In analyzing the reasons for this failure to meet standards, it became apparent that the basic lack in these institutions was the absence of administrative leadership. The American Psychiatric Association has recognized this problem and is now working with the Institute of Administrative Medicine and some of the other courses in hospital administration to attempt to bring to that field some better administrative knowledge.

THE field of industrial or occupational medicine has also grown up somewhat independently. It received its impetus from the employer liability acts in which the employer became liable for industrial accidents. Thus, many plants set up medical facilities to care for these accidents.

Under the guidance of such men as Dr. Sappington, Dr. Hussey, Dr. Page, and others, the original purposes of caring for industrial accidents were broadened into the human relations aspects of the care of the employees of industry. There have been many excellent developments in this field but when one analyzes many of the other industrial programs, it becomes apparent that they are not all operated with a leadership

which is interested in the broad health problems of total health care for the people coming within their establishments.

I have discussed with several leaders in the field of occupational medicine the apparent need of bringing this type of medical care into closer working relationships with the other types of medical care. In many cases we have found little or no interest beyond that of operating a clinic in a factory or industrial organization. Recently, in examining carefully one such industrial organization which was under survey at the Institute of Administrative Medicine, it was found that there were a series of clinics being operated for the benefit of the employees. The employees of necessity went there for care of an industrial accident but in addition were able to go there for ambulatory care. There was available what was termed "preventive medicine," which meant a somewhat cursory physical examination on a periodic basis with some laboratory and x-ray screening. The clinics were operated on a part-time basis so far as the medical profession was concerned, with doctors employed on a part-time hourly wage and nurses employed for the whole day. It was evident in analyzing the services that during the periods in which the doctors were present a good type of clinical care was in operation. However, when the doctors went home the nurses often did things that should have been done by physicians. No one seemed particularly interested in whether this was good or bad. What our survey group noted in this institution as being most lacking was real administrative leadership that would develop an interest in the total health care of these employees. There was no adequate prepayment plan program available for employees. When asked what would happen if one of the employees had a sudden illness at night, such as a gall-stone in the common duct, it was stated that the patient would have to seek out a family doctor or any other doctor he might find who would come to him, without the benefit of the knowledge of the preliminary physical examinations and screening done in the institution. It appeared to our survey team that a great deal of the value of such periodic examinations and screening is lost when it is done on an outpatient basis and is not coordinated with the other health problems of the employees outside the industrial clinic. Most of the men who were directing these clinics, and this is true also of many other non-industrial clinics, in addition to many hospitals, had had no real training in administration. They were doing the best they could, but they did not have available to them many of the tools of modern administrative organization that would have helped them develop an adequate institution coordinated with total health needs.

IT MIGHT be well for a moment to discuss what some of the aspects of administration are, for even this is subject to argument and general discussion. At a recent lecture, Dr. Wallace Sayre, Professor of Public Administration at Columbia University, delineated four principles of administration which he finds are present in varying amounts in the administration of most institutions. These are four sets of conceptual systems concerning the organization of human work:

1. *Administration as a technological system.* This concept of administration is the most widely known and the most widely talked and written about. It is the so-called "scientific management." It views administration as a problem in the technology of organization. It is the climate of the engineer, the accountant, the statistician. The mood of this conceptual system is austere, impersonal, rational, logical. The most important operative norms in this system include: hierarchy, division of work, standards, procedures, work units, unit costs, work and cost trends. The concept of hierarchy holds that an organization must have clearly established levels of authority —a chain-of-command—such as may be found in a military organization. If one tries to put this concept of administration into a field of health, it becomes somewhat difficult because of the special relationships of the medical and other professional staffs to the administration. It is said that a hospital may be more like a symphony orchestra than like a business corporation. This concept has made great and lasting contribution to the principles of administration, but it is not a complete theory of administration. It must be modified in certain institutions by some of the other concepts of administration.

2. *Administration as a system for policy formulation and decisions.* This concept of administration is widely recognized. It is particularly found in the literature of public administration and also to some extent in business administration. It sees administration as concerned most importantly with the methods by which an organization plans its policies; makes decisions or choices between alternative policies; revises its present policies, programs or schedules its work to carry out these policies, evaluates the results of its policies and its work programs. In this system of administration are included the problems of alternatives and consequences; the controversial choices and hazards. It includes the world of analysis and rationality, but consent and agreement are more important than logic or command. The key words in this conceptual system of administration are purpose, policy, program (which is more concerned with ends than with means). This system is more interested in methods of administration than in organization. Important operative norms are planning, decision-making, work programming, evaluation.

3. *Administration as a social process.* This is mostly a post-war addition to the literature of administration. This concept of administration centers its attention upon the institution as a social group, as a group of human beings each of whom brings to the organization his own unique set of values, attitudes, motives, personality structure—and it is, therefore, the interaction of these individuals with each other which shapes the organization and determines its be-

havior. This system sees administration as a world of inter-personal relations and its approach to organization is frequently described as "human relations." Administration as a social problem is concerned with the behavioral life of an institution. This is the climate of the sociologist, the social psychologist, the psychiatrist, the social worker. The most important norms include leadership, participation, communication, morale.

4. *Administration as a system of responsibility.* This system has had the least formal development of all of the concepts. It is concerned with the external relations of an institution—its responsibility and accountability to its constituency and the arrangements by which this responsibility is assured. This concept of administration as a system of responsibility is concerned with identifying, defining, clarifying, and carrying out the organization's relationship with its relevant external environment. The most important operative norms include constituency, reporting, appraisal, and responsibility or accountability.

It is quite apparent that in considering the administrative problems of any institution in the health field we cannot make administration fit into any one of these concepts; it must include a great deal of all of them.

IN ORDER to discuss the emergence of administrative medicine as an important factor in the development of health, the Macy Foundation has been financing a series of conferences on this topic. In the three conferences held so far, leaders in the field of health and sociology, management and labor have sat down together to talk about administration. In the first conference it was brought out that the fields of health are much more segmented than almost any other institution. These segments are of several types. The first types of segments are those arising from the specialization in the medical profession. All groups of professions and techniques in the health field have their own organizations; have set up their own standards mostly without any reference to the standards set up by others. This has forced a decided change in administration. Administration up until fairly recently was mainly of the technical variety. The administrator was the head of a pyramidal organization and in many cases was actually a dictator. It was not possible with the doctors, nurses, dietitians, medical social workers, record librarians, physical therapists, occupational therapists, and all of the other professions and techniques of the health field to be properly coordinated by any method of dictatorship.

It was stated at this Macy Foundation conference that the health administrator of the future must be basically an enabler who must make it possible for all types of health work to be coordinated in the institution; a coordinator who coordinates all of the profession and technical groups to do a job together; and an educator, who teaches all the groups and also the public how to do a job of working together. It is upon this basis that we are attempting to develop leaders in the health field.

A problem arose this year with reference to the use of trained administrators in the field of industrial or occupational health. A young medical man who had had some years experience in the Army and also some in industry had decided he would come to the Institute of Administrative Medicine with the ultimate aim of obtaining a post in administration in the health program of an industrial organization. The pattern of education we use in the Institute is that of one year of didactic and group work at the University and one year of supervised residency in administration. During this time the resident or student works in the office of the administrator of an institution doing administrative duties and learning the administrative problems occurring in the institution. This was the first student that we had who was interested in administration in the field of occupational medicine. He visited several well-known industrial medical organizations to talk about obtaining a residency but was told that there was no such thing and that the only way that top administrators were obtained in the field of industrial medicine was to start in as a clinician doing clinical work at the lower levels. Maybe some day he might go up the line of command where he could possibly head a unit. If this is generally true in the field of industrial administrative organization, it would appear that many of the concepts of administration discussed previously are not being too well observed. This might also be the reason that quite a number of the industrial medical organizations with which I am acquainted are not coordinating themselves too well with the other phases of the health field. Their leadership is not administratively oriented but rather is clinically oriented.

I would like to propound the question: Are good administrative knowledge and leadership ability a necessity to develop the very fine parts of the industrial health program into a better part of the whole program of health for the people of an industry? The Institute of Administrative Medicine would be much interested in developing with any of the programs of occupational or industrial health a working conference in which the problems of administration in the occupational health field could be discussed. Perhaps, out of such a conference, ways could be found to obtain the same kind of leaders for this field as we are now obtaining for hospitals, health departments, and, lately, prepayment plans.

It is my hope that there will be an interest in the inclusion of administrative medicine as a portion of the essential part of industrial and occupational medicine, and that we can work together to develop a high level of coordination of the occupational health field with the total health problems of our nation.

Instruction in Occupational Medicine at the Undergraduate Level

REPORT OF THE UNIVERSITY OF OKLAHOMA WORKSHOP

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ALTHOUGH surveys have demonstrated that occupational medicine is now incorporated into the curriculum at many schools of medicine, no recent opportunity has appeared for the teachers of this subject to meet and review the present instructional effort. To provide this kind of workshop for the exploration and delineation of goals in undergraduate courses in this subject, a Conference was held at the University of Oklahoma School of Medicine, Oklahoma City, on November 9, and 10, 1954.

It was decided to investigate the occupational medical curriculum by asking basic questions: *Why* teach? *What* is taught? *Who* teaches? *Where* and *how* is it taught? Following a searching look at the answer material offered by the group, conclusions would be drawn and recommendations made.

Why is Occupational Medicine Being Taught?

FUNDAMENTAL to all intellectual or scientific undertakings is a clear understanding of why a specific action is being taken. As many efforts are emotionally generated and sustained, it is desirable that one's work be analyzed to ascertain if true need exists for it, if the objectives are meaningful and significant, and if the task is relevant to the cultural segment it serves.

For sound platform construction in this section of the study area one must recognize that the United States is industrialized to the capital investment level of hundreds of billions of dollars, and to the manpower total of 63,418,000. Created by and within this industrial mammoth, its technologies, and its people are problems of illness, health, and interpersonal relations presenting themselves for resolution. Is special knowledge needed to recognize and care for these problems?

The following composed the study group: ROBERT F. BELL, M.D., University of Colorado; FRED A. BRYAN, M.D., University of California at Los Angeles; JEAN S. FELTON, M.D., University of Oklahoma; HENRIETTA HERBOLSHEIMER, M.D., University of Chicago; D. JOHN LAUER, M.D., University of Pittsburgh; OTTO TOD MALLERY, JR., M.D., University of Michigan; LEMUEL C. MCGEE, M.D., University of Pennsylvania; ALVIN S. MEYER, LT. COL., USAF, MSC, Creighton University; ROBERT B. O'CONNOR, M.D., Harvard University and Tufts Medical College; SOPHIE RABINOFF, M.D., New York Medical College; GRADIE ROWNTREE, M.D., University of Louisville.

These are the *reasons* for teaching occupational medicine:

1. *There is a lack of knowledge among medical practitioners re: occupational health problems.*

Many physicians are unaware of the existence of, and are unfamiliar with the symptoms and signs of most of the occupational diseases. Frequently, so-called "false positives" of job connection are read into or concluded from physical examinations or symptom clusters. On occasions, recommendations are made for changes in work locations, work times, or other work factors, with inaccurate or no knowledge of the total work environment and its relation to physical status.

As nearly 95% of all general practitioners practice industrial medicine and surgery, in one or another of its many forms, this group should possess the skills needed to perform well, within this medical segment.

2. *There is a paucity of physicians qualified to render medical services to industry.*

Practitioners are needed by industrial plants, small, medium-sized, and large, to offer part-time or full-time medical service. Few there are who can be asked to consider this kind of practice, be it in their offices or at the worksite. Until such time as a sufficient number of graduates is appearing after completion of specialty training, there should be an increase in the number of general practitioners who can render a productive, meaningful service to industry. This kind of service stems from early exposure to occupational medicine during the undergraduate years.

3. *To correct the erroneous concepts held by the contemporary medical student re: the status of the industrial physician and the special kind of information needed by him to practice within the industrial framework.*

Traditional vagaries in thinking about the doctor in industry have persisted to convince the student that this brand of medical artist is less knowing and less skilled than his colleague outside the plant pale. To attract competent physicians to occupational medicine, accurate information must be given the undergraduate student, and this is done best by including course material prior to graduation.

4. *Curricula in preventive medicine have demanded inclusion of industrial health as an important segment of that science.*

In the full consideration of environmental health, a knowledge of work factors is needed to exercise preventive care, or constructive or creative medicine, most effectively. With these added data, a completely integrated picture of the social forces playing upon the individual can be presented in the teaching of preventive medicine.

5. *To provide a better part-time service to industry.*

As future developments appear in medicine in industry, emphasis will be given the provision of health service programs to small plants. Also, with the dispersal of industry to small towns in the South and Southwest, away from the usual hubs of manufacturing, needs will arise for this kind of service in communities unaccustomed to any form of industrial health programming. Young graduates, oriented to this kind of practice, would be able to render a good part-time service.

6. *To meet the needs of industrial managements desiring medical personnel.*

Most of the large corporations, and many smaller organizations have instituted within-plant medical programs. The worth of such undertakings has been felt by these companies, and to establish and maintain the physician staffs graduates must be available who understand the requirements of industrial medical practice.

7. *To acquaint specialists with occupational disease syndromes and their implications.*

Few are the medical specialties that fail to touch one area of industrial health. Be they dermatologists, surgeons, orthopedists, chest physicians, ophthalmologists, or neurologists, their consultant services are requested by industry. They should have a basic understanding of those illnesses or injuries that are work-caused or work-related coming within the scope of their specialized interests. The neurologist should know of such conditions as manganism and mercurialism; the ophthalmologist, radiation cataract and chemical burns of the eye; the dermatologist, the occupational dermatoses; the chest physician, the full group of the pneumoconioses—all as examples of somewhat uncommon but necessary knowledge to the specialist being called upon by the physician in industry. These variations of his main theme of specialty training usually are not encountered in most of the residency programs. Through an undergraduate exposure to these disease entities, a better service can be given to industry's Medical Directors who face these syndromes resulting from exposure to health hazards at the worksite.

8. *To prepare physicians for their responsibilities in forensic occupational medicine.*

Soon or late, a physician will be required to appear in court or before an industrial commission to offer testimony in contested claims or suits stemming from alleged or real job causes. To serve as a witness, or as an expert, is one of the responsibilities of the physician, and this program should be executed capably, helpfully, and unemotionally.

That this kind of activity is an expected one, and not an onerous task to be avoided or handled discreditably, should be understood during the student period. From these early orientations of the undergraduate to his future role in medical jurisprudence can come a better contribution to forensic medicine, and an improvement of some of the contemporary carryings-on in the resolution of workmen's compensation difficulties.

9. *To learn preventive medicine in a specific situation.*

If the developing framework of medical teaching persists, considering, as it does, the total forces impacting themselves upon the individual in forms of stress, then greater and greater emphasis will be given preventive medicine. With specific therapeutic modalities appearing constantly that eliminate disease, the age-old duos of diagnosis and treatment dear to the learning hearts of all medical students will give way in part to a desire for knowledge of disease prevention. To witness the changing concepts of medicine one needs only to observe the diminished area of practice of the otorhinolaryngologist, the closing of tuberculosis hospitals, and the opening of thought re: the physiologic and pathologic changes of aging and the forestalling of these changes implicit in such thinking.

In occupational medicine, where one's groups of patients are relatively static (considering the low national labor turnover or separations rate) preventive medicine can be exercised in many areas of disease detection and control. It is this kind of living, stimulating situation that offers an unequalled opportunity in the demonstration of constructive (preventive) medicine at work.

10. *To broaden the "totality" concept of medicine.*

Through presentation of the pressures at work (physical, psychological, social and occasionally spiritual) the student can acquire knowledge of the wholeness of man. When correlated with physical findings and measures of job effectiveness (absenteeism, productivity, judgment, etc.), the approach to holistic medicine can be initiated if not presented previously. It is through this comprehension of the employee patient as a worker, a husband, a community citizen, and as a person of many roles that one learns that the matching of etiology to symptom involves more than identification of a single causal agent.

11. *To provide factual material in the study of epidemiology.*

In the identification of an occupational disease, opportunity for study of its full development—its epidemiology—is unparalleled. All the features, such as cause, kind and intensity of exposure, clinical syndrome, altered physiology, pathologic changes, treatment, prevention, and control can be discussed in sequential order, and thus demonstrate extremely solidly, the principles of epidemiology.

12. *To acquaint the student at an early date*

with occupational medicine so that he might consider this, along with other specialties, as a field for graduate study.

To attract students into the specialty training programs in industrial medicine, it is necessary first, that he know the field exists, and, second, that he has some familiarity with the areas covered by this special medical activity. With the opportunities now available at various schools of medicine and graduate schools of public health for the taking of advanced degrees, it is only through an academic preamble that curiosity and interest can be aroused.

13. *To familiarize the student with the resources—materials, persons, and facilities—in occupational medicine.*

When the undergraduate has completed his training, there will be occasions in his practice when he will wish to contact a person or a facility for information relative to a problem in industrial health. Through his early exposure to lectures and specialists in this branch of medicine, he will learn of the individuals, agencies, and institutions possessive of the knowledge necessary for resolution of the particular problem at hand. Of greater importance is the awareness that can be developed in the student of the ability and desirability of these agencies to cooperate in an activity for mutual benefit.

14. *To fulfill a responsibility of the school of medicine to the community.*

One of the functions of the medical school, or medical center, is to serve in the community as a source of specialized medical knowledge. There must be a central agency to which practitioners, the people, industry, labor, and other institutions can turn for information in occupational medicine. When a subject is being taught to students, the existence of personnel and a department is implied, so that this kind of information can be available to those seeking it. When a particular activity is established in a community, and when good communication is practiced, the community then becomes richer in that discipline, and its problems should meet with earlier solution.

15. *To meet the needs of local industry through a research service.*

Of the recognized functions of a university faculty member, i.e., teaching, research, promulgation of ideas ("production," or publication), and community service, the last cannot be neglected. Through this, the obtainment of secondary gains from the establishment of a teaching program (in any specialty) becomes possible. Where the activity is dynamic, vital, and of immediate relevance to the surrounding culture, a service can be made available to industry in the form of applied research. This benefits all. The industry sponsoring the study gains, the teaching staff is given research opportunities, and frequently extra-curricular work can be offered the student interested in obtaining income in a manner pleasing, satisfying, and stimulating to him. With this kind of intellectual reciprocal trade agreement, both teaching and occupational medicine can flourish.

When Can Occupational Medicine Be Taught?

ALTHOUGH in many schools occupational medicine is not taught until the third or fourth years, it was agreed that material could be presented at any time during the four-year period, depending upon curricular flexibility, the keenness of the instructor, the awareness of opportunities, and so much like the material he teaches, upon his own skills in interpersonal relations with other faculty members.

The First Year:

To be sure, if there is an early orientation to industrial health, the material must be diluted so as to come within the ranges of comprehension and interest of the students who as yet have not been in contact with clinical situations. In those schools where the student on matriculation is assigned to a family as health counselor, then his contact with a wage earner with job and medical relationships begins early. In one school efforts are made in the first year to acquaint the student with some of the culture of medicine, and with some of the nobility of medicine that has preceded us. Included in this is a lecture on historical highlights in occupational medicine, with emphasis on the keen-visioned pioneers who first recognized poisoning by work materials.

It was the consensus that no time is too early for the instillation into the student of the concept of the interdependent relationships between man and his work as seen in the way he feels, works, plays, lives. To divorce the patient from these relationships would produce a kind of tube-visioned view of him.

The student (or employee) health service of the university hospital can demonstrate to the entering student the worth of a complete physical examination, conducted in much the same manner as though he were an applicant for employment with the hospital. If this procedure is explained to the new class of students in the light of selective placement, with the student's being in a work situation with rewards, hazards, stresses, satisfactions, etc., then the lectures in occupational medicine given in later years, really will come alive.

The Second Year:

The concept of the integration of industrial medical material into the curriculum at this point seemed more feasible than in the first year. This implies weaving into pharmacology, microbiology, biochemistry, etc., illustrations or applications of that subject with industrial medical referents. Some institutions have claimed that considerable teaching in occupational health is accomplished in this manner and that it might be superior to the presentation of the solid substances of industrial medicine under its own marquee. The group questioned the validity of this contention, but did discuss how such a crossing over into these other second-year disciplines might be accomplished.

The Third Year:

This milestone marks the beginning of stronger emphasis on occupational medicine through a greater allocation of academic hours, and through

the student's first extended exposure to patients. Different formats for instruction take shape at this point, and the didactic lecture appears with the presentation of clinical material, for half or all of the year.

Added to the lecture course are visits to plants with review seminars held at the conclusion of the tours. Witnessing workmen's compensation courts, commissions, or boards as cases are heard, proves of worth in the eyes of some in pointing up the less medical but more legal phases of certain industrial medical affairs.

Occupational data are emphasized in the patients brought before clinico-pathological conferences or in those reviewed at medical rounds. In some areas the industrial medicine specialist has elicited his own history from the patient and has been able to demonstrate certain etiologic data not previously recognized.

Student contacts with the hospital's Social Service personnel, in certain instances provide information of patient-job relationships, and permit scrutiny of the pressures of work on the home scene.

In essence, the third year can provide the first lengthy exposure to occupational medicine at one or another of its operating areas. Some schools present in this year the material encountered usually in the fourth year, believing that there is student readiness for this curricular addition. Or, perhaps, this is the only time available for such instruction.

The Fourth Year:

Characterizing the discussion in this phase was the concept that the course of industrial medicine given to undergraduates was strictly an orientation to the field, a survey, a sensitization course. There is no goal of great depth of learning or retention of factual material. Rather, the aim is to create an awareness that there are governing principles in occupational medicine, and if the young graduate can recall some of these—principles, attitudes, or methods—then the exposure has been fruitful. None of the group professed a desire to offer the students any great mass of material, or technical details of interest only to the practitioner in this specialty.

Placing the didactic lectures and their accompanying field trips in this fourth year was common. Other opportunities appear at this time for instruction. Clinics are held in the wards (one hour per week) by some who consider this an effective teaching situation, particularly with clinically oriented students. The instructor who is serving as the attending physician on a hospital service can utilize these teaching rounds for discussion of (a) occupational disease, or (b) work adjustment implications of the patient with any illness or injury. Grand rounds and medical conferences are other open opportunities for teaching.

One member reported what he considered to be an ideal situation—the utilization of the Health Service (for employees and students) for teaching. Senior students were assigned in groups of three for two periods of four hours each. Following a 30- to 40-minute conference, each student would be given a patient (applicant for work or current employee) on whom either a preplacement or periodic physical examination was to be conducted. Their examinations included a venipuncture, the operation of the audiometer and the ortho-rater, and the giving of all immunizing injections. At 11:00 A.M., a second conference would be held at which time each student would present his patient's history, findings, and interpretations, this being followed by a discussion of the work-pertinent elements of the story. During the late morning conference of the second session, two student nurses assigned to the Health Service for an introduction in industrial nursing would join the group.

Frequently following the case presentations would be sessions in role-playing which would give the student opportunity to practice a verbal interpretation to the "patient" of the findings. Coursing from polysyllabic words to lay terms often was over a long verbally hazardous path.

Rare is the occasion in medical school for the student to examine a well person. This Health Service teaching-format provides that setting.

The fourth year preceptorship has appeared in many schools. A student will find himself associated with a physician who will be doing a considerable amount of industrial work from which he can learn. Some schools offer preceptorships in industry, where the complete picture of medicine at work can be viewed. (Often a salary accompanies this kind of plant assignment, almost never matched by the private physician preceptor.)

Paralleling this living instruction is the extracurricular externship in industry, where during a second or third shift of a plant a student will serve as the first aid attendant. The observant student can absorb much if he is interested.

These, then, are the methods of operation at each of the four academic steps, the success of any one being determined by the contagion of the instructor's interest and enthusiasm.

What Should Be Taught

PROGRAM content can be varied to include material relevant to all industrial medical activities, or can be highly selective, to emphasize only certain features deemed of worth in this period of brief exposure. Agreed upon by most of the participants were these subjects—not necessarily new, but of substance:

1. Background and history of industrial medicine.
2. Current pattern of industrial medical programs.
3. Structure of industry and industrial operations (general and specific).
4. Position of industrial medicine in the company's organizational scheme, and in the contemporary medical culture.
5. Employee physical examinations and job placement.
6. Medical records.
7. Occupational diseases and toxicology.

8. Industrial hygiene (general principles only).

9. Presentation of clinical material.

10. Fringe benefits.

11. Emotional problems of employees—recognition and resolution.

12. Health education.

13. Disaster planning and emergency medical management.

14. Current opportunities in industrial medicine.

15. Integration of specialty material (ophthalmology, dermatology, cardiology) into course.

16. Accident prevention.

17. Workmen's compensation—its laws, its development, its philosophy, attitudes toward it, and the structure of medical evidence.

18. Disability certification.

It was recognized that methods of teaching would differ, and emphases would vary. It was stressed, though, that the student understand that ordinary medical facilities could be used for the practice of industrial medicine—a private office, an out-patient department, a dispensary—and that this specialty did not demand unusual or elaborate settings. Paramount always was the underlining of the concept of prevention. The importance of the interdependence of industrial and the other medical disciplines is to be scored.

Where is the Teaching Accomplished?

ALREADY mentioned were the classroom, the industrial plant, the courtroom, the ward, the outpatient department, the hospital Health Service, and the preceptor's office. Some of these present special features that provide for a better teaching locale than others.

What are the desirable aspects of a field trip to a plant? These were the replies meeting with approval:

1. To see industry in action.

2. To see exposures to occupational health and accident hazards.

3. To see measures for occupational illness and injury prevention.

4. To see the worker in his job environment.

5. To be able to discuss industrial medicine with the plant physician. (His files are available.)

6. To learn the reason for being of the Medical Department.

Considerable discussion was held relative to the merits of a trip to an industrial accident board or commission hearing. These values, however, were believed to develop through such a visit:

1. Demonstration of the medicolegal demands on the physician (industrial or other practitioner).

2. Pointing up of need for good medical records.

3. Demonstration of another responsibility to one's patient (or job).

4. Illustration of the end point of the insurance reporting system.

5. Opportunity for review of quality of medical care in a specific situation.

6. Provision of exposure to another profession's activity in which the physician's role is secondary.

7. Demonstration of another set of interpersonal relations.

8. Provision of insight into a socio-economic system.

Who Does the Teaching?

AS DEMONSTRATED by surveys in the past, the teaching is conducted by various persons with different academic ties, and of assorted occupational connections. This was felt to be desirable as it provides the student with the philosophy of teamwork in occupational medicine, and exposes him to the people who share in industrial health responsibilities.

Those conducting the teaching might be staff members on a full-time or part-time basis, specialists in occupational medicine, or non-industrial physicians or guest lecturers in one or another of these categories: Physician, specialist in industrial medicine. Chemist. Industrial hygienist. Industrial nurse. Safety engineer. Representatives from: management; law; insurance; industrial relations; labor.

Which is the Appropriate Department?

THIS WAS NOT considered of such importance as to warrant discussion. Wherever the curriculum committee, or other body, places occupational medicine will be satisfactory (department of medicine, department of preventive medicine, etc.) for the success of the program lies not in its specific placement, but in the skills and fire of the teacher.

What is the Appropriate Title for the Course?

ONCE MORE there seemed to be little of significance attached to the term used in the courses. Some adhere to industrial medicine, others prefer occupational medicine, or occupational health, and in one instance, the joint heading of occupational medicine and industrial health was used. The name should be based upon the local semantic needs of the institution. If *medicine* is a term more acceptable than *health*, because of old interpretations of public health, then *medicine* it will be. The consensus was that the title should serve the local situation, and what was most meaningful in a particular setting should be the label of choice.

Comment

IT WAS THE consensus of the study group that these deliberations be reviewed by those scientific bodies interested in undergraduate training—that their committees on education distribute this report if deemed contributory to the common academic good. Comparably felt of value would be the addition to this report of teaching outlines or syllabi currently in use, for the perusal of the discussion group or others interested in initiating a teaching program.

Stressed by all, however, was the need for more teaching aids*—materials that would vitalize the

lectures. These are in short supply in many schools, and yet it is recognized that certain institutions, because of locality or emphasis on certain aspects of industrial medicine, do have items of merit in visualizing the course content. There would be chest films of silicosis available to schools near mining areas,* while in others near manufacturing centers, samples of raw materials, intermediates, and finished products could be obtained for demonstration.

With some effort, these items could be procured and distributed to those instructors desirous of adding them to their meager supply. This could be done most expeditiously by establishing a central clearing house where a listing could be maintained of the materials obtainable from contributing schools.

To this central point could be sent information from participating institutions, i.e., (a) teaching aids available for instruction, and (b) teaching aids desired. The information and requests could be circulated for direct communication between interested schools. Through this pooling of materials, a better teaching might result—at least, the didactic lecture could be refurbished to compete with other courses rich in visual aids.

Summary

1. REPRESENTATIVES of 11 medical schools met to review practices in teaching occupational medicine at the undergraduate level.

2. The reasons for including this segment of medicine in the curriculum embraced the needs for a greater knowledge among practitioners of occupational health problems, for correction of erroneous concepts held by today's students, for the provision of a better medical service to industry, for a better acquaintance of specialists with occupational disease syndromes, for a more skilled assumption of medicolegal responsibilities, for a furthering in a specific situation of both an holistic and a preventive approach to medicine, for orientation of the student to the structure of the specialty so that he may consider this as an area of specialization, and for the creation of a research service for industry.

3. Occupational medicine can be taught in any year from the first to the fourth, depending upon the flexibility of the curriculum, the keenness of the instructor, the awareness of needs, and the skills at interpersonal relations of the instructor in his faculty situation.

4. Orientation lectures and integrated material can be given in the first two years, and more extensive courses can be offered in the last two, employing a broad front of teaching methods and learning situations aimed at a general understanding rather than a detailed knowledge.

5. Material to be included in the courses covers historical items, contemporary medical programs, industrial operations, examination schemes, records, toxicology and occupational diseases, emotional problems of employees, health education methods, disaster planning, workmen's compensation, disability evaluation, and current opportunities in occupational medicine.

6. The teaching can be carried out in many settings—the classroom, the wards, the outpatient department, the employees' health service, the industrial plant, the industrial commission courtroom, the preceptor's office, in addition to other lecture rooms where material on industrial medicine is integrated into extra-departmental courses.

7. Instruction is most capably carried out by specialists in occupational medicine, but the use of allied practitioners emphasizes the philosophy of teamwork. Full-time or part-time staff members, physicians, chemists, industrial hygienists, safety engineers, and representatives of industrial management, the legal profession, the insurance industry, industrial relations departments, and labor organizations can serve as guest lecturers. Guidance and appropriate integration of the guest into the teaching program should be effected by the one person responsible for the program.

8. The specific departmental placement of occupational medicine academically is not considered important, and the title given the course should be designed to fit local needs.

(801 Northeast Thirteenth Street.)

*Not to be argued with, though, is the contention that the best teaching aid is a good supply of colorful personal experience anecdotes such as offered by DR. CAREY P. MCCORD in his "Blind Hog's Acorns."

Ridiculous?

BEAR in mind that the courts are continually taking a more and more liberal attitude toward recreational and social injuries. What would not have been compensable 10 years ago, is compensable today. How far the courts will go tomorrow no one can predict. There is an ever-increasing tendency on the part of the courts to find that workman's compensation and social insurance are the same. It hasn't happened yet, but the end result may be that compensation will be awarded to the man who is hurt when he falls out of bed in the middle of the night. Why may such an award ultimately be made? Because the man had gone home exhausted from a hard game of Chinese checkers at which he publicly mentioned the name of his employer and the products the employer makes. Ridiculous? Perhaps—but let's see what the next 10 years bring!

—From "What's the Cost When Your Workers Play?" by RICHARD F. GONDA, Legal Editor, in *Occupational Hazards*, MAY, 1955.

Trauma and the Psychiatrist

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THE WORDS trauma and traumatic are common to surgeons and psychiatrists alike. To each they have, by definition, the same meaning. Yet the physical severity and extent of an injury may not correlate well with the ultimate outcome of treatment measured in terms of the total functional capacity of the patient. At times, minor as well as major physical traumata may be followed by grievous and persistent disability. To study such phenomena requires an addition to the usual dimensions in which the severity of an injury is measured: the addition of the dimension of the personality. A fracture is more than a compound comminuted fracture of the left tibia. It is a compound comminuted fracture of the left tibia occurring at a particular time and involving a particular personality. Even as the patient's nutritional status, his protein balance, or the presence of infection will influence the course of healing and the eventual outcome, these latter will be influenced by the patient's characteristic modes of reacting to stress and by the meaning or impact of the stress acting at the particular time. The physical and the psychological features alike are aspects of a homeostatic system.

The term "traumatic neurosis" has a familiar ring, but it is not to be found in the Standard Nomenclature of Disease. Rather, it is an inadequate descriptive statement imputing to some event an unduly specific genetic significance for a set of symptoms or a state of affairs which may happen to follow. This is not to deny that a physical trauma may play a precipitating role for a considerable sequence of developments; but if we are to learn more effectively to manage, to treat and, above all, to minimize or prevent these reactions, they must be placed in a proper frame of reference. I have used the term, homeostasis, a term well established in physiology and dramatically applied to medicine in the work of Selye *et al.*[1] In the past decade, this principle has been applied more and more in psychiatric thinking.[2]

Before considering a specific clinical example with an attempt to delineate some of the pertinent dynamic factors influencing the patient's reactions and to establish these reactions as a sequential chain of events, it is appropriate to identify certain psychological terms and functions:

The term dynamic refers to the energies involved in the operation of the personality. The essence of modern psychiatry is in the study of the vicissitudes of these energies, whether they be called instincts, drives, forces, or by any other name. Psychologically, just as metabolically, there is a basic dualism involving inherently constructive and inherently destructive forces. Primal energies must be directed and regulated. The term, ego, refers to that complex of functions which has to do with perception, regulation and control. It is these that reconcile the demands and pressures of the external world and the individual's inner aggressive drives and instinctual cravings. With successful ego function, an optimum and effective homeostatic equilibrium within the organism is maintained. Outwardly, certain of these functions are observed as characteristic of the individual's modes of adapting to life and are known as mechanisms of defense.[4] Literally, this means defense against anxiety for a failure in the successful operation of these functions in their task of resolving and reconciling conflicting forces first results in pain, psychic or somatic. Further disequilibration results in disability.

Menninger[3] has used the term "distintegrative threat" to refer to a force which would tend noticeably to disrupt the psychological equilibrium. The term "tension relieving device" is used to refer to the activity initiated by the individual in response to the disturbing force. Suppose an individual is severely criticized by his employer. At the normal level, some possible responses would be to increase the exercise of self-control, to do something constructive about the situation, to cry, or, perhaps, to indulge in a brief period of imagining some retribution. Menninger then grades reactions to severe stress. At the first level, the "alarm reaction," there is some form of hyperactivity or of hyper-inhibition. These include such complaints as "jitteriness" or "nervousness." Restlessness and pointless overactivity belong here, as does hyperlability of the sympathetic nervous system. Such reactions may persist for a time and then fade if the person succeeds in regaining his previous higher and more successful level of equilibrium. Given sufficient stress, they will persist. An equilibrium at this level is less efficient, for energy is consumed in the reaction itself. The individual is less adaptable and has less reserve.

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If reactions of this order are insufficient, if they fail in their attempt to keep tension at a bearable level, if the stress increases, or if through exhaustion the efficacy of these devices wanes, reactions of the second order make their appearance. At this level the individual's ego takes a further step of withdrawal from reality, a retreat which exacts a sacrifice. The symptom is the manifestation of this sacrifice. Thus, a phobia or an obsession, certainly handicapping things, may yet permit a working equilibrium. It is an acceptance of the dictum that "half a loaf is better than none." The symptom is a sort of "half loaf" and the compromise balance it effects is known as the primary gain of the illness. This is to be differentiated from various secondary gains which may adventitiously accrue. Symptom formations involving somatic complaints fall at this second level. These range from fantasies of somatic illness as seen in hypochondriasis to the unconscious simulation of a body disorder as in conversion hysteria and from the physiological production of somatic disease as in psychosomatic disorders to the psychological exploitation of some intercurrent somatic disease or injury.

A CLINICAL example with which to develop these considerations is that of S, a 47 year old machinist's helper with 22 years of railroad employment. In servicing a turntable mechanism he slipped on an oily surface, fell, and struck the lumbar spine against a rail. He finished that day at work and reported for work on the three succeeding days though with an increasing complaint of pain in the back and of stiffness and limitation of movement. Only then did his foreman send him to the dispensary. He grew more uncomfortable and restless while sitting on the hard waiting room benches. He left without seeing the doctor and went home and to bed. The symptoms progressed. A few days later he was admitted to the hospital complaining of severe pain in his back and hips. He moved slowly and stiffly. The entire spine was held in a rigid manner. His attitude was surly, plaintive, and not very cooperative. Physical, neurological, radiological and laboratory studies were all within normal limits, save for the discovery of a spina bifida occulta of the third lumbar vertebra. Active movements of the spine and legs were limited but passive movement, straight leg raising, etc., revealed no limitations. When S was apprised of the findings he was incredulous and suspicious. Standard measures appropriate to the treatment of a back strain failed to alleviate his complaints to any appreciable degree. By the third week in hospital he was convinced that he was being given "the brush off." In his mind this more than justified his increasingly frequent thoughts of a disability settlement and of a pension. At the same time, he adamantly and suspiciously refused to grant permission for the claims department to review the findings.

S was the youngest of six children and was six when his father died. Thereafter the mother worked hard to support the family. S and the next older siblings, two sisters, but particularly S had little spare time that was not taken up with odd jobs to augment the family income. The three older brothers rather quickly withdrew from the group, each working to advance his own career. Each of these became quite successful. These three all became big men physically. S remained short in stature and continued to work with his hands.

The mother was an unhappy woman. As her sons left one by one her harangues became more bitter. S got little praise for being "dutiful," for remaining with his mother long after his sisters had married, and for turning over to her no small part of his modest earnings. He did avoid being the object of his mother's criticism. As time went on, envy of his brother's increasing prosperity was controlled by what is known as a reaction formation. In this instance, this took the form of a repetitious, monotonous, boresome bragging about the brother's accomplishments which by its very excessiveness betrayed the measure of the hidden, and consciously unrecognized, resentment within him. In a small way, he could match his brothers by buying clothing of fine quality. Repeatedly in his conversation he would find a way to refer to his hat or his shoes or some other item, and always this reference would include mention of the price he had paid.

He was 39 when he married a widow with a daughter then aged six. His wife had a small income from some inherited property. These funds he felt to be none of his concern. In fact, he didn't know what this income amounted to. All of his wife's and his stepdaughter's personal expenses he felt to be his proper obligation. During the years of World War II he often worked a double shift. Savings slowly accumulated. He bought a house. His pride in his property grew. The lawn was immaculate; the roses luxuriant. Then came a new stove, furniture, a television set. All were bought for cash, but then there was no more reserve.

About three months from this point came the accident. The first psychiatric interview was one month later. The patient walked slowly into the office with his spine slightly inclined forward and his gait slow and stiff. He immediately complained about having to be seated for any length of time, asserting that this aggravated the pain in his lower back and hips. The psychological examination revealed no perceptual deficiencies. Intelligence was in the average range.

He was defensive and guarded in responding to questions. His thought content centered on his somatic complaints and on the minutiae of his distress. He seemed hurt and resentful that his erstwhile steady work record did not seem to be recognized by the doctors. With this went the feeling that others were callous to his suffering and to the effect of his disability on his morale. When he moved away from the subject of his illness it was most often to speak of one of his brothers, boastfully, pridefully and rather aggressively as does the youngster who defiantly

hurls the challenge that "my dad can lick your dad!" Another prominent ideational element was his negative and scornful attitude toward all the medical attention he had received. He also verbalized the thought that he was not being given the benefit of all that the doctors might do if they were really interested in getting him well so that he could go back to work. His emotional tone was somber and plaintive. He appeared afraid to be venturesome in attempting movement of his back and legs. He was chronically irritable, and petulant outbursts were frequent.

Study of the integrative aspects of this patient's personality shows that his goals were to be the adequate provider and head of the household. In actuality, however, by endowment and with the conditioning of his early life experiences he was not equipped to emulate his brothers' assertive self-sufficiency. His inner resources were insufficient to maintain adequate self-esteem. He remained largely dependent on his environment in this regard. Security earned by dutiful compliance became an essential of his orientation. Furthermore, all of his interpersonal relationships appear to have been markedly ambivalent with hostile feelings being denied and covered over by reaction formations. As an example, the excess boasting about the envied brothers has been mentioned. Another is in his self-sacrificing relationship with a seemingly unappreciative mother. Another, significant for his illness, was his extravagant and probably injudicious furnishing of his home. This bravado sought to assert a capacity to keep up with his brothers and was in itself doubtless an attempt to deny the pressure and the stress that actually being the head of a household was for him. His elaborate disinterest in his wife's income falls in the same category.

These mental mechanisms which we call reaction formations are to be found to some extent in every individual. Their potential weakness as a defense mechanism lies in the fact that the forces they oppose are not disposed of or resolved but are only held in check so that with an increase in stress such reactions tend to give way. When much of the ego, the controlling aspect of a personality structure, is built up of such elements as these it results in a relatively inadequate character structure lacking in resilience, flexibility and strength.

The principle of homeostasis, modified by the idea of the "steady state" as postulated by von Bertalanffy,[5] permits us a concept of the total personality as an energy system which may function at different levels. In fact, a constant flux is the regular state of affairs. The more adequately stresses are met, the more adequately developed and efficient the personality mechanisms are, the less energy will be utilized in protective or compensatory functions. The direction of change in the basic homeostatic level is perceived in alterations in the individual's adaptive capacity. In our clinical example, it is possible to outline a sequential series of shifts in this basic level.

Within the range that would be considered normal for his personality the patient tended to accommodate to stresses by passive acceptance and compliance. In other words, the pattern of acceding to external demands provided certain rewards and minimized certain conflicts. Such a pattern, however, fails to make adequate accommodation for the individual's own assertive and aggressive drives. Other measures were necessary and the patient's personality had, for a long time, incorporated certain features of a lower order. He tended to be hyper-irritable. He showed hyper-irritability. He showed hyper-compensations that were patently defensive, adding little to his real resources as a person. Contrast, for example, his boasting and his indulgence in fine clothes with something of potential value, such as a constructive hobby. It is true that he did garden, but this became involved with the matter of his marriage, and the fact that for this man the demands of marriage and its responsibilities were a stress is reflected in the emergence of sundry new reactions of the pathological order of the hyper-functions. Hyper-suppression of concerns and resentments was present and finally there was hyper-compensation of a severe degree when the patient abandoned his lifelong habit of frugality and spent almost all of his savings on new furniture and appliances. It is admittedly speculative, but there are definite features to suggest the possibility of further disequilibration in this personality even had the accident never happened. It did happen, however, and some degree of somatic insult ensued. The spectre of loss of income arose at the very time income was of prime concern. The equilibrium was further threatened. Resentments long kept narrowly in check finally spilled over to some extent, and to some extent now came to be bound by pathological devices of a lower order.

There may have been a period of time when this decompensation could have been forestalled. We know the patient worked for several days after the accident. This may reflect the actually minor nature of the somatic insult, or it may have been a piece of behavior representing the last ditch stand of his former level of adjustment. Whichever it was, the result was that at a critical point there was not an effective opportunity to bolster his sagging defenses with medical attention, rest, physiotherapy or anything that would, in addition to physical relief, have afforded something to offset the breaking through of the resentments of a lifetime in such a way as to produce incapacity for his job and a liability for his employers.

THE CASE illustration points to important aspects in the management of traumata, particularly in the industrial setting where to the complexities of the individual personality are added the complexities of the employer-employee relationship, and the impact of compensation considerations. In all of these there may be elements which can retard return to functioning health.

First: Even a relatively minor physical trauma may, in a vulnerable personality, be experi-

enced as a considerable threat of stress. Strict routines dedicated to providing a maximum of emotional support have their greatest impact at the time of the event itself and before decompensation has led to a psychological compromise at a less effective level of function. Recall our military experience. The majority of those cases of combat exhaustion given help, such as much needed rest and other supportive measures at the battalion level were able to make a successful return to duty. With each step back along the evacuation chain there was an enormous drop in the percentage of those who could be salvaged for further service. Had S's foreman insisted on immediate medical attention, rather than permitting the lapse of several days with increasing fixing of the symptoms, much might have been gained. It was then too late for the therapeutic and prophylactic effect of care, concern, attention, a palliative, and reassurance.

Second: There must be awareness of the potential importance of the initial medical contact. A dispensary surgeon may be very busy, but nursing personnel can be available quickly to initiate the personal attention every patient needs. S sat for more than an hour before he wearied of it and left. He blamed his discomfort on the hard bench. The fact that he felt utterly unnoticed may have had more to do with it. When he entered, someone took down his name. From that point on he felt no one's interest in his plight, and this at a time when resentments had already mounted dangerously.

Third: The railroad surgeon must frequently contend with the attitude that he works for the company more than for the patient. He tends to be identified with this authority. For this, there is some basis in fact since he may decree such things as the time of return to duty. If a positive physician-patient relationship is not developed, the patient's characteristic modes of reacting to authority will tend to dominate his attitudes toward the doctor and toward his treatment. In private practice this might mean no more than the patient's changing doctors, but in the industrial setting the result will be the complicating of the clinical syndrome by the effects of all the negative attitudes the patient harbors toward the foreman, the boss, the company, and anyone who gives orders.

Fourth: Such cases as the one cited touch one of the problem areas in matters of compensation adjudication and claims settlement. There are those who, without discrimination, proclaim that suffering must be compensated. This point of view, at first glance seemingly so humanitarian, fails completely to reckon with the fact that all too often man can be his own worst enemy. Surely no influence acting to accentuate or prolong a disability can be viewed as an unmixed blessing. Even though we have not reached that point where rehabilitation facilities and psychiatric skills would justify a demand that rehabilitation replace monetary compensation when the continuing disability can be demonstrated to stem from a personality disorder, it is incumbent on the medical profession to disseminate the knowledge and the insights that can lead toward increasing enlightenment and the genuinely humanitarian goal of restoration to the fullest functional capacity for every patient.

Fifth: What of the present-day role of the psychiatrist in this broad area? Psychiatry in industry is in its infancy. It can raise many more questions than it can answer. In individual cases such as the one cited we could only infrequently expect psychotherapy to be successful in resolving the impasse. In this particular instance it was not. It is with regard to prevention, rather, that the psychiatrist can shed some light; can help to broaden understanding. In railroad medicine, as in all industrial medicine, the physician must work in spite of rules, regulations and inflexibilities that ignore many of the individual needs of his patients. Should the doctor remain silent? I think not. Where large numbers of people are involved the matter actually becomes one of public health. Historically as threats to public health have been ferreted out remedies have evolved. So too, I think, many problems within and related to working situations can, with patient study, be made to give ground to increasingly constructive resolutions.

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That Cigarette Cancer

Here, if you accept the cigarette-cancer theory, is a most curious disease. It begins with a carcinogen (cancer-causing agent) which no one has ever found. It proceeds through pre-cancerous conditions undetected by man. But, once you develop lung cancer and it is *then* established that you are a "heavy" smoker, the theorists are satisfied. They haven't the faintest idea how it came about, but they will insist that the cigarettes did it. —From "Go Ahead and Smoke," by Dr. William F. Rienhoff, Jr., in *Pageant*, May, 1955.

Psychiatry in Industry—Tomorrow

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ALTHOUGH psychiatrists and industrial executives agree that the psychiatrist can be substantially useful to a company there is surprisingly little agreement among them as to where and how the psychiatrist should go about his work.

As a result it could be said that psychiatrists have been working only on the fringes of industry and as such have not gotten together in a working relationship with management that even approaches the maximum of usefulness.

The purpose of this paper is to suggest a clinically-structured industrial psychiatric program which will bring the psychiatrist into the industrial organization where management can make full use of his knowledge of human relations and his skills in bringing about conditions so that people and companies can effect remedial changes.

This program will have all the advantages of a doctor-patient relationship and none of the crippling disadvantages of the currently practiced fringe-area psychiatry.

The Company Becomes the Patient

THE essence of this company-centered approach is that the company is to become the patient of the psychiatrist. The psychiatrist must be removed from the periphery of the industrial organization and take his place in the center of the factory while at the same time he must be able rapidly to shift from this position to one apart from the factory and look back with a wide-angle lens that encompasses not only the factory as a whole but also the geographical, economic and cultural environment surrounding it.

This concept is not new to the psychiatrist who knows from experience with patients that he has to become involved in the patient's experiences while at the same time retaining the ability to get far enough away quickly to perceive what is going on between himself and the patient. If this is not done the psychiatrist becomes as lost as the patient, and the sad situation of the lame leading the blind results, and it becomes difficult to tell who is helping whom. It is not difficult to believe that this relationship actually does exist at the present time where a psychiatrist is employed in a factory and assigned to a job or is called upon by management to undertake a specific task. Performing as such, the psychiatrist has forgotten about the necessary structuring of any workable therapeutic relationship.

Psychiatrist, Individual, Family, Group

TO SHOW how this new working relationship between psychiatry and industry is to come about it is necessary to review briefly how psychiatry has gradually developed techniques of helping first the individual then families and groups. Until recently psychiatrists have restricted their talents and applied their knowledge and skills mainly to helping individual people with the attitudes and fears that interfere with their health and happiness. However, gradually they have developed techniques, largely through necessity, of helping many people at one time through group participation. This is known as group therapy—where the psychiatrist serves as a group leader or catalyst for the working through of problems. As psychiatrists began to turn their attention toward group relationships, especially the family, it became increasingly evident that social workers and psychologists were useful if not actually necessary in meeting the needs of many. As a result interdisciplinary teams known as mental health clinics were formed throughout the country. Thus the psychiatrist working as a member of a team probably began with the formation of the mental health clinics, and as a result more people could be reached. The ability of certain people trained in different but allied skills working together toward a common goal of helping people with their problems resulted in the wider application of psychologically sound principles of mental health—specifically, the American family benefited immensely.

The Psychiatrist and Institutions

THE NEXT larger and inevitable groups to attract the attention of the psychiatrist were institutions. Probably the first to accept the help of psychiatrists were the universities and colleges. Today there is probably no major university without a psychiatrist on the student health staff. Industry was not far behind the educational institutions in opening its doors to psychiatry. However it has opened its doors only momentarily —just enough so that one psychiatrist could sneak in (by the back door) and he was quickly sent to the Medical Department and given employee-patients to see. From this vantage point the psychiatrist has had little opportunity to apply his knowledge and skills to the vast problems of disturbed human relations in the factory as he is able to do with individuals and smaller groups. But it should be remembered that when the psy-

chiatrist began helping the family and groups, he himself got help from other disciplines.

Why then do we find the psychiatrist working alone with a vastly larger group than the family? Is it because he has forgotten to take a team along with him, or does it have something to do with the established concept of the role of a psychiatrist as a doctor with a patient? The fact is that the psychiatrist has not been as readily received in the factory as he has been in the home. Is it because of a lack of conviction among psychiatrists that they cannot be equally as useful to the industrial organization that is having difficulties with its employees as they have been to the family that is having trouble with one of its members? Perhaps this lack of confidence is justified if the psychiatrist is not working or cannot work with an interdisciplinary team formed to minister to the over-all needs of the company. This, I believe, is the main reason why psychiatry has not been readily accepted into industry. It is a fact that the solitary type of endeavor of a psychiatrist working with a patient cannot meet the needs of a much larger group, the factory.

The Psychiatrist Works Alone

IT IS regrettable that at the present time psychiatrists frequently work alone or apart in the company—seeing selected personnel with emotional problems or working with the training department in promoting psychologically sound supervisory practices. At times the psychiatrists are asked to identify and correct malevolent management procedures. Essentially they are working alone, assigned either to the Medical Department or the personnel department, and occasionally they may occupy a place so as to be on call to top management. In any of these capacities little do they have the same opportunity of being aware of all information bearing on problems that they have in a therapeutic relationship with a patient.

It now becomes important to spell out how and why a psychiatrist becomes as clinically therapeutic to a factory with its problems when working as a team member as he is alone with a patient. First of all, for a psychiatrist to become of maximum usefulness to a factory it will be necessary for him to obtain as complete knowledge about the factory as he has to obtain about one person and his family if he is going to help them with their problems. With one person it is possible to secure this information by repeated and frequent interviews with the patient and his significant relatives in a sufficiently short time so that remedial processes can begin soon after therapy has started. At least the psychiatrist has some idea of the problem and is not proceeding blindly. An additional important fact is that the psychiatrist has enough training in the cultural and social sciences so as to know how these factors bear upon the problems of the patient. Essentially the psychiatrist alone is able to identify and evaluate the patient's problems within a sufficiently short time to be able to bring about a concentrated remedial approach upon all the problems the patient is having. He is able to be fairly sure that most of the important problems have been uncovered.

The Psychiatrist as a Member of a Team

BECAUSE of the complexity and size of the factory and the variability of the sources of the stress and strain each employee is subjected to daily, it is impossible for the psychiatrist working alone positively to identify the problems and evaluate the difficulties that are seriously interfering with the health of the factory in sufficiently short time so that an evaluation can be made with current information. Furthermore the psychiatrist is not adequately trained in business and industrial practices to have the empathy and understanding of those experienced and working in industry or those other specialists such as industrial sociologists, anthropologists and human relations workers trained in more empirical methods of scientific data collecting.

Management has progressed far in understanding and evaluating its problems as well as having taken remedial steps to correct them without the help of a psychiatrist. However, at the present time it would seem that with management's realization that human relations are largely the basis of their most disturbing problems, a psychiatrist would be a most useful adjunct to their team.

Why, then, is the psychiatrist not readily accepted into industry in his most useful capacity —as a member of an interdisciplinary term. One reason could be the psychiatrist's natural inclination to remain in the stereotyped doctor-patient role he is familiar with because of the security involved. However with any role-playing other people help to mold the particular role—in this case it could be that management is reluctant to accept the psychiatrist in any other capacity but as a doctor with a patient. If the latter is true, management needs only to stop and think about how much information a psychiatrist has to have about the individual patient and the people he interacts with before any lasting remedial process begins, to see how helpless he must be when working alone in a large company. With this in mind, only by getting rid of the doctor-patient role can the psychiatrist approach his maximum of usefulness to industry. In order to do this he will have to give up some of the glory that has been his alone—the "I" must become "we." He will have to accept with some humility a position on an interdisciplinary team—instead of the doctor-patient role there will be a doctor-team-factory role. With this combination of knowledge and talent it would be possible for the team to study the factory in its totality in a sufficiently short time so that data collecting from all departments would be followed by interpretation and evaluation while all problems were current. If too few people attempt to do a cross-sectional study the data collected at the beginning of the inquiry become historical and useless a year or two later when an attempt is made to combine them with the latest information obtained.

This, then, is the main contribution that psychiatry has to offer industry—bringing about an interdisciplinary team approach to the problems of industrial and labor relations. To do this the psychiatrist must shed some of his omnipotence in believing that he can do the job alone as he once did with individuals.

If we can agree that the psychiatrist becomes of maximum usefulness to management as a member of an interdisciplinary team, we should attempt to bring this about as rapidly as possible. The first step would be a clinical one. We will have to be more careful in selecting our patients —the factory. We must select only the whole factory and not just part of the factory as our patient. I am reminded of Dr. Temple Burling, Professor of Human Relation at the Industrial and Labor Relations School, Cornell University, saying "you can't hire a hand— you have to hire the person." So just as we consider the whole person on the job we must consider the whole factory, and further attempts of psychiatrists to work alone in a factory will be mistakes which only perpetuate the impression of our limited usefulness.

Some psychiatrists will say that we must get a foothold in industry by working in any capacity that is afforded us so as to convince management of our ultimate maximal usefulness. To those I would reply, I agree that we ultimately want to become maximally useful to industry. But if we can only do this by considering the factory as the patient of an interdisciplinary team, are we ahead by working alone in a restricted environment fully realizing that we are not going to achieve much and in the end hear management repeat what we have heard before—psychiatry can't really help us. Accepting a job with industry to work alone is analagous to accepting as a patient an infantile alcoholic, whose wife has been and always will be masochistically mothering her husband-son. Another analogy comes to mind in which the psychiatrist is trying to help the immature son of a punitive and rejecting mother who denies this by leaning over backwards in overprotecting her child. The constructive efforts of therapy are being opposed by overwhelmingly destructive influences over which the therapist has little control.

The psychiatrist working alone in industry is at a greater disadvantage than the therapist in the above described cases. He does not usually have the opportunity to be aware of the destructive influences that are operative. As psychiatrists we do not attempt to treat patients who want treatment on their own terms and under their own conditions. We do not accept patients to have appointments when and as often as they want, nor do we give in to their demands of only wanting to get rid of their headaches without making inquiry into the way they get along with other people. We know such treatment endeavors are too likely to end with bad results, with most of the emphasis falling on the psychiatrist—"He isn't any good. I went to him and he didn't help me." Isn't the same thing true when we accept a job with industry—offered conditionally in terms of what management thinks best for it.

Were it not for the fact that psychiatrists with additional training in industrial and labor relations now can be fairly confident of being extremely useful to industry I would not stress this suggestion.

Perhaps if psychiatrists will be more careful in selecting their patients—the factory—the day will soon arrive when every factory wants a psychiatrist-team, just as now every county wants a psychiatrist-mental health team or clinic. I believe that we should accept a position to work with a company upon our terms which we know at least have a reasonable chance of success in bringing about remedial processes. It seems foolish to accept as a patient the factory the management of which dictates terms of relationships that have little chance of improving the factory's problems and a sure chance of further devaluating the contributions psychiatry can make toward improving industrial and labor relations.

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False Economy

ONE of the musts for a good health service is proper medical supervision. A fundamental concept of a nurse's training is to make her a part of a specialized team, not an individualist. Why then should we expect a nurse to work alone in industry? Every industrialist should realize that it is a false economy to hire a nurse and not at least a part-time physician to work with her. And I don't mean a "doctor-on-call" arrangement. By a "doctor-on-call" we mean a physician who has consented to respond in case of emergency and advise the nurse when called upon. He, of course, does not get paid for supervising the nurse. The doctor on call has no authority and little influence at the plant. He is not a part of the in-plant team. Only indirectly does he contribute anything to the preventive health program, for instance, through preplacement physical examinations.

—From "Health Service in Industry," by W. E. PARK, M.D., in *Minnesota Med.*, quoted in *American Association of Industrial Nurses Journal*, April, 1955.

The Management of Multiple Injuries

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WITH progressive mechanization and the striving for higher speeds in our modern world, the incidence of simultaneous, severe, multiple injuries in the same patient is steadily increasing. In such cases all the difficulties of management of a single regional trauma may be multiplied infinitely so as to create a complex surgical problem. Not only are the general, non-specific effects of trauma on the body as a whole more profound and devastating than in the case of one specific injury, but these may develop insidiously and be masked by obvious regional injuries. The concentration of therapeutic efforts on a conspicuous or manifest injury may divert the surgeon's attention from a concealed but more urgent condition and lead to a fatal or unhappy outcome. Even when the patient with multiple injuries has been thoroughly evaluated and the manifold problem considered in its entirety, questions of priority in treatment arise. The surgeon is then beset with weighing the indications for the ideal treatment of one of the injuries against the contraindications of carrying out that particular treatment. This enforces compromise and delay, and taxes judgment, time, and skill to the utmost. Furthermore, severe trauma is not selective of a body region or of a particular tissue but indiscriminately may batter head, neck, trunk, and extremities. It does not respect anatomical divisions or systems but mangles together skeletal tissues, soft tissues, and viscera with equal indifference. The surgeon who deals with trauma may thus be urgently confronted with the problems of any or all of the surgical specialties, as well as with the problems of general surgery.

Since in the time allotted it would be impossible to consider adequately the infinite number of combinations and possibilities presented by patients with multiple injuries, I want to emphasize general principles of management that apply to all victims of severe trauma, and to discuss specific regional injuries only insofar as they are related to the problem of multiple injuries.

IN THE emergency care of victims of multiple injuries, the primary consideration is to save life. This demands immediate attention to hemorrhage, to shock, and to the airway. Next a tentative evaluation of the extent and the type of injuries should be made and fractures should be splinted before the patient is moved. I hesitate to mention the splinting of fractures before this group, but in recent years we all have been remiss in our teaching of what constitutes adequate splinting, with the result that splinting is in danger of becoming a lost art. The initial splinting falls to the lot of the admitting intern, and it has been my observation repeatedly in the past few years that many of our interns have little or no knowledge of how to apply an effective splint. It is our responsibility to see that our emergency rooms are equipped with a variety of adequate splints and that the attendants are taught how to use them. It is also our responsibility to dissuade the eager beginner from hastily performing unnecessary procedures, such as extensive suturing of wounds and prolonged x-ray examinations, on these severely wounded people. Such procedures are frequently more safely and better done later. Our younger men should be taught the importance of getting these patients to bed as soon as possible for further urgent care and evaluation. Definitive treatment of specific injuries can usually be deferred until some plan of priority is established. Complete, accurate evaluation of the injuries may require close, repeated or prolonged observation. Even after the immediate threat to life is past, the possibility of a lethal outcome must still be considered.

Any severe trauma, whether it be single or multiple, threatens life in several ways, either immediately or after the emergency appears to be past. In the case of multiple injuries the threat is usually greater and yet it may not be so obvious as in the case of a single apparent trauma. Let us consider first the non-specific causes of death from severe trauma. I use the term non-specific to indicate that these factors may be associated to some extent with every injury. These non-specific problems are of general occurrence and the responsibility for their management and solution falls within the province of general surgery. I should like to exclude for the present specific causes of death, by which I mean direct lethal injury to a vital center or organ, such as the brain. In the latter case, the management carried out by the general surgeon follows principles laid down by specialists and, when available, special consultation may be sought and responsibility shared.

The non-specific causes of death, or the general problems, are shown in Table I and are:

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TABLE I.
NON-SPECIFIC CAUSES OF DEATH FOLLOWING MULTIPLE INJURIES

1. Shock.
2. Hemorrhage.
3. Infection.
4. Pre-Existing Disease (Cardiovascular-Renal, Etc.).
5. Respiratory Complications:
   A. Obstructed Airway.
   B. Reduced Vital Capacity and Tidal Air.

Shock, hemorrhage, infection, pre-existing disease, such as cardiovascular-renal complications and respiratory complications. In the Table, I have emphasized the last item, respiratory complications, not because the other items are less important but because I believe that at the present time increased attention to respiratory complications of multiple injuries offers the greatest promise for further lowering of mortality. There are several reasons for this: First, in the past there has been a tendency toward a resigned and hopeless attitude over respiratory complications, which has led either to neglecting them or to treating them in a haphazard manner. Second, experience gained from the war in the management of shock and hemorrhage has been widely accepted so that the mortality from these two factors has been lowered remarkably. The value of blood, plasma, blood substitutes, and fluids has been amply demonstrated and their general use has reduced the relative importance of shock and hemorrhage as a cause of death following trauma. Third, with regard to infection as a cause of death, its relative importance has also been spectacularly reduced through the judicious use of chemotherapeutic agents and antibiotics in conjunction with better surgical technique. With the reduction of mortality from shock, hemorrhage, and infection that has already been achieved, the relative importance of respiratory complications as a cause of death has increased. The recognition and management of respiratory complications after trauma are not so well defined or so generally understood. The development of respiratory complications following multiple injuries is often insidious, so that their seriousness may not be appreciated until too late. We owe a great deal to the anesthetists and thoracic surgeons for their contributions toward the lowering of general operative mortality and morbidity, particularly from postoperative respiratory complications. We can gain more profit from the lessons they have taught us by applying the same principles to the management of the patient with severe multiple injuries. We know from our experience in operative surgery that while direct trauma to the chest is prone to cause respiratory complications, trauma remote from the chest may result in the same complications. It is not necessary that the trauma be direct. Chest complications are very likely to develop following severe multiple injuries, whether or not the chest is directly damaged by trauma.

Since the serious common denominator of respiratory complications is anoxia, the management of these complications is concerned with its effective prevention or correction. Now the obvious modality for the treatment of anoxia is the administration of oxygen, but oxygen therapy may be completely ineffective or inadequate because of the nature of the pathological condition causing the anoxia. The pathological conditions associated with multiple injuries that may make oxygen therapy ineffective may be grouped in two categories: First, mechanical obstruction of the airway. Second, reduced tidal air or vital capacity. We must be sure that these two abnormalities are recognized and controlled as far as possible before we can expect the full benefit of oxygen administration. It is surprising how often oxygen is administered to patients with respiratory complications of multiple injuries without attention to its effectiveness. By being alert to the underlying pathological processes and devoting attention to their control, I believe we can save many more victims of multiple injuries than we have in the past.

The causes of obstructed airway following multiple injuries are listed in Table II. The

TABLE II.
CAUSES OF OBSTRUCTION OF AIRWAY FOLLOWING MULTIPLE INJURIES

1. Tongue, Jaw.
2. Foreign Material.
3. Blood.
4. Edema, Hyperemia.
5. Bronchospasm.
6. Mucus: A. Excessive Secretions.
   B. Viscid Secretions.
   C. Depressed Ciliary Activity.
   D. Depressed Cough Reflex.

tongue or the jaw may fall back toward the pharynx in the patient with consciousness depressed from trauma or from overmedication or from jaw fracture. Foreign material, such as dirt, dentures, or loose teeth, may cause mechanical obstruction. Blood may gain access to the airway from within or from an external source. Examination should include checking these possibilities. The treatment is urgent and obvious. Only after shock, hemorrhage and these respiratory factors are controlled should definitive treatment be undertaken. Edema and hyperemia may occur from direct trauma about the air passages or may develop from pre-existing inflammation within, such as chronic bronchitis. Vasoconstrictors, such as phenylephrine (*Neosynephrine*) hydrochloride may be administered by nebulization or aerosolization. Intubation or tracheostomy may be necessary. Bronchospasm such as occurs in patients who already have asthma may be helped by the local or systemic administration of bronchodilating drugs, such as isopropylarterenol (*Isuprel*) hydrochloride or epinephrine and antihistaminics.

Accumulations of excessive mucus in the pharyngo-tracheobronchial tree are a much more frequent source of difficulty. This occurs in patients who have inflammatory changes in the respiratory tract from irritation caused by smoking, infection, etc. Other factors that predispose toward the accumulation of excessive secretion

are a depressed state of consciousness, pain and weakness from trauma, posture, hypoxia and hypoxemia, cardiac insufficiency, depressed ciliary activity from trauma or drugs, depressed cough reflex or cough inhibited because of pain. Aspiration is essential and postural drainage, if feasible, may be tried. Everything possible should be done to aid the elimination of these secretions, such as intercostal nerve block to relieve pain. Depressant drugs should be avoided. If oxygen is necessary, its value will depend upon the thoroughness with which the airway is cleared.

If the secretions are not eliminated soon after their formation, they become viscous and tenacious and much more difficult to detach and expel. They then act as mechanical plugs and as media for bacterial growth. The sequelae of mucus retention are atelectasis and pneumonitis, which in turn diminish vital capacity and tidal air. The

TABLE III.
REDUCED VITAL CAPACITY AND TIDAL AIR FOLLOWING MULTIPLE INJURIES

1. Abdominal Distention
2. Injury to Chest Wall
3. Pleural Space, Mediastinal Involvement
4. Lung, Bronchial Abnormalities
5. Damage to Respiratory Center

bronchial secretions become viscous primarily because of stasis and the dehydrating effect of respired air or oxygen fanning over them. Other possible factors are posture, dehydration of the patient, and the use of drugs, such as morphine and atropine. Change of posture, the encouragement of deep breathing and cough, control of humidity and bronchoscopy may be indicated. The administration of a wetting agent, such as alevaire, is prophylactic. When oxygen is used, it is not only advisable to have a clean airway but also to be sure of adequate humidity. The most effective means to accomplish this is aerosol therapy with a wetting agent.

Because of the importance of adequate respiratory function for survival from the effects of trauma, I want to discuss briefly a few specific conditions commonly associated with multiple injuries that cause reduction in the vital capacity and tidal air. It is important to be always alert to the possibility of their presence.

Abdominal distention is very common either from direct abdominal injury or from more remote injury to the vertebrae or ribs. The differential diagnosis between intra-abdominal injury and an ileus due to remote injury may be quite difficult, especially after distention is pronounced. The diagnosis will be made easier and unnecessary abdominal surgery may be avoided if routine examination of the abdomen is made at the onset and repeated. In the case of remote causes of abdominal distention, progressing distention is the conspicuous finding while local abdominal signs, such as actual abdominal tenderness or rigidity, are more likely to be secondary. The deleterious effects of abdominal distention on both the respiratory and cardiac mechanisms are obvious.

The commonest injury to the chest wall associated with multiple injuries is rib fracture. Probably because rib fracture by itself is ordinarily not serious and because ambulatory treatment is often adequate, its seriousness in cases of multiple injuries is frequently overlooked. In conjunction with multiple injuries, rib fracture predisposes to or aggravates all of the respiratory complications already referred to and, therefore, carries serious potentialities. Adhesive strapping of the chest as a form of treatment has been flatly condemned by some. My own position is that strapping is often of value in the ambulatory case but should be used with caution, if at all, in the patient confined to bed with multiple injuries. If properly applied, it hinders ventilation and promotes the accumulation of secretions. Intercostal nerve block to control pain and permit full respiratory excursion is preferable. In the case of stove-in chest with paradoxical respiration, strapping is of no value. In these cases it is necessary to apply traction to the affected rib segments or, as suggested by the Wesley Hospital group, to the skin overlying the loose chest wall by means of wires or pins.

Encroachment on the pleural space in cases of multiple injuries frequently occurs as a result of hemothorax or pneumothorax. Both of these conditions are serious and hold high priority for treatment in the patient with multiple injuries. It is generally agreed now that the blood should be aspirated not only to relieve immediate respiratory embarrassment but also to obviate the necessity for a later decortication operation. Repeated x-ray examinations are a valuable guide to the need for repeating thoracentesis.

Tension pneumothorax is a still more serious condition with an urgent priority. It is characterized by early, severe chest pain and shock with rapidly progressing respiratory embarrassment and the gradual development of subcutaneous emphysema. Because it will rapidly reduce effective respiration to a lethal level, it must be recognized at once. The emergency treatment is to insert a sterile needle with an open end finger cot or glove attached through the second interspace anteriorly. This will quickly act as a flutter valve and will take care of the emergency. If necessary, a water seal apparatus can then be set up. It is important to remember that air is best aspirated from the upper chest anteriorly, whereas, fluid or blood is best drained from the dependent part of the chest posteriorly. The respiratory rate, the absence of labored breathing, repeated x-ray examinations, and determinations of pleural pressure all serve as guides to the further treatment of tension pneumothorax. Adequate control of tension pneumothorax is usually sufficient to control mediastinal emphysema, but in the occasional case suprasternal incision for release of mediastinal tension may be necessary.

It is important to remember that contusion of the lung in some degree is usually associated with injuries to the chest wall. While the extent of the lung contusion is not easily evaluated and the contusion itself is not accessible to treatment,

it is extremely important to eliminate all other remediable factors contributing to respiratory difficulty. Contusion may heal spontaneously under favorable conditions but under unfavorable conditions may lead to pneumonitis, which is best treated with antibiotics.

When injury to the head occurs with multiple injuries, it is most likely to become the primary problem and require priority in management even when it does not appear to be the most urgent condition at the onset. I do not intend to discuss head injuries here except to emphasize the importance of their careful evaluation in the patient with multiple injuries and to mention their high priority in management. Such patients do not well tolerate early extensive surgical procedures, so that definitive treatment of the other injuries may have to be delayed until the danger from the head injury is past. The depression of consciousness and of respiration associated with head injuries predisposes to the accumulation of bronchial secretions and anoxia, which may lead to a respiratory death. Patients with head injuries require particular attention to the respiratory tract both with respect to cleansing and for the administration of oxygen.

Fortunately, penetrating wounds of the abdomen in association with multiple body injuries are not common in civilian practice. When they do occur, early surgical exploration is mandatory as soon as the patient's general condition permits it. Non-penetrating abdominal injuries on the other hand are commonly associated with multiple injuries. The differential diagnosis and evaluation of non-penetrating abdominal injuries can be exceedingly difficult, and their management in the presence of other injuries demands fine judgment and often calls for serious deliberation. Early and repeated clinical examinations and x-ray studies by flat plate are helpful. Early surgical exploration is advisable when there is evidence of rupture of the spleen, gastro-intestinal tract, or urinary bladder. If there is evidence of continuing free intra-abdominal bleeding, exploration becomes necessary. For rupture of the kidney or liver, for injuries of the pancreas and for retroperitoneal hemorrhage, early treatment should be conservative. It should be borne in mind that signs of peritoneal irritation with perforation of the terminal colon or the small intestine may be mild immediately after injury, because of the consistency or small quantity of the leakage.

A recent study by Dr. Burton Kilbourne of 47 cases of non-penetrating abdominal injuries at St. Luke's Hospital throws considerable light on the possibilities with abdominal involvement in multiple injuries. Approximately one-third of his patients with non-penetrating abdominal injuries had multiple body injuries. The other body regions involved in decreasing order of frequency were thorax, extremities, cranium, pelvis, and spine. The abdominal organs involved were spleen, small intestine with mesenteric vessels, multiple viscera, liver, colon, duodenum and stomach, in that order.

Compound fractures deserve a high priority in the management of multiple injuries. If the patient's general condition does not permit definitive treatment of fractures, every effort should be made to debride and close the wounds early, following which immobilization should be maintained until such a time as reduction can safely be carried out. Procedures of value in the emergency closure of compound wounds are: The use of relaxing incisions and split skin grafts and the replacement of avulsed skin after cleaning and defatting the skin. If because of other serious injuries compound wounds cannot be closed within a few hours, delayed closure or open treatment may have to be carried out.

Definitive treatment of spine fractures can ordinarily be delayed, since the patient with other severe injuries is confined to bed. There is an exception, however, with evidence of cord injury. In this event, immediate laminectomy is indicated because it is impossible to determine clinically whether paralysis is due to physiological or anatomical interruption of nerve pathways. Delay in treatment may cause reversible changes to become irreversible.

Patients with severe multiple injuries almost invariably require continuing attention to fluid intake and urinary output, maintenance of nutrition, and control of anemia. For those who have been receiving medication, such as cortisone, ACTH, insulin, etc., prior to injury, the medical program must be continued or intensified.

A DISCUSSION of the management of multiple injuries requires mentioning the medicolegal aspects of the problem. Trauma is the most fertile field for litigation in all medicine on the basis of public liability, compensation, and malpractice actions. The surgeon treating trauma must accept the fact that every case is a potential source of future controversy and litigation. The medicolegal implications of multiple injuries are as manifold as the injuries themselves, but several common sources of medicolegal difficulty and embarrassment should be kept in mind:

1. A scanty, inadequate record of examinations, progress, treatment, and of the reasons for a certain course of treatment is a primary source of trouble. Details and even important features of a case are readily forgotten in the interval between management and litigation. Nothing proves more embarrassing in the event of litigation than a scanty record. Nothing else can furnish one with the confidence and assurance that an accurate, complete record gives.

2. In dealing with multiple injuries, it is easy to overlook an important injury either because the patient may be unaware of it or unable to attract attention to it.

3. An important injury may be overlooked or neglected because of concentration of efforts on a manifest condition.

4. The necessity for compromise with, and delay of, ideal definitive treatment may lead to a relatively poor result with respect to one of the less urgent injuries.

5. After recovery, the patient or his lawyer may claim disabling injury to a part not actually involved at the time of treatment. This is especially true with respect to the spine.

To minimize or obviate these medicolegal difficulties, it is important to perform thorough examination of the entire body including head, neck, thorax, abdomen, back, pelvis, and extremities and record the findings. Since negative findings are often as important as positive ones, both positive and negative findings should be recorded. Evidence of a previous injury or disability should be noted. Whenever there is a problem that might be clarified by x-rays, films of diagnostic value should eventually be obtained. The reasons for deliberate delay or compromise with definitive treatment should be specifically stated in the record. Every new complaint of the patient should be investigated and regular progress notes should be made.

Because every case of trauma is potentially a multiple injury case, it is important to bear in mind the frequent association of certain conditions, such as compression fracture of the spine with fracture of the os calcis; rupture of the spleen with fracture of the left lower ribs; urinary tract injury with fractured pelvis. In the case of fracture of one of the bones of the lower leg or forearm, it is important to rule out fracture or dislocation of the other bone at a different level.

Summary

FOR THE successful management of the patient with multiple injuries, I have stressed:

1. Attention to the non-specific factors which may cause death, particularly respiratory complications;

2. The importance of a thorough evaluation of the injuries in order to establish a plan of priority in treatment;

3. Consideration of commonly associated injuries and the possibilities of concealed injury; and

4. Consideration of the medicolegal problems created by multiple injuries.

From the Archives

INDUSTRIAL medicine is the theory and practice of medicine applied to the prevention of sickness among industrial workers and their prompt restoration when sickness or accidental impairment has occurred . . . . TO BE effective, industrial medicine must not be limited to the care of injuries. On the contrary, its value is determined largely by its use in the hygienic supervision of working conditions and the prevention of diseases among the workers . . . . THE RELATION of industrial physicians to plant organizations should be such as to favor correlation and make for greatest efficiency. It is better that they look to the directing heads for authority rather than to departmental heads . . . WHOLE-TIME medical service seems to be feasible in small establishments and wholly desirable in large establishments . . . . KNOWLEDGE of the theory and practice of medicine, such as is possessed by the ordinary physician in general practice, does not necessarily mean that the possessor of that knowledge is able to apply it to industrial needs. Physicians who intend going into industrial service should seek special training in that direction which will enable them to adapt their knowledge to the requirements of industrial work . . . .A PART-TIME industrial physician is never wholly an industrial physician, and the doctor who renders service only upon call is usually more of a surgeon than a physician. . . . THE EVOLUTION of industrial medicine and its growing importance are attracting specialists to the industrial field. Prophylactic dental service, an example of this specialization, is becoming deservedly popular. . . . INDUSTRIAL medicine is not only humane but is also essential to production. It is beneficial to workers and profitable to employers. It offers splendid advantages to physicians for the development of careers in a field of rapidly growing importance, vital with opportunities for service to humanity.

—From "Studies of the Medical and Surgical Care of Industrial Workers," by C. D. SELBY, M.D., *Public Health Bulletin No. 89*, published in 1919.

The Alcoholic in Industry —and his Rehabilitation

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IN ANY discussion of the alcoholic in industry, we prefer to use the term "problem drinker." The problem drinker in industry may be defined as one who, because of his use of alcoholic beverage, is unable to perform properly his normal functions at work, and who, because of the effects of alcohol loses time or is a hazard on the job. On the other hand, the term "alcoholic" usually refers to the chronic addicted drinker.

The question arises, how can one determine when a man is a problem drinker? This is more difficult to answer than is supposed. Many groups interested in the subject have worked out methods of defining such a drinker, but they have arrived at no final answer. The usual method, of course, is to make use of a questionnaire, and a number of these have been drawn up. One such consisted of 50 questions of the "yes" and "no" variety, such as: "Do you feel sorry the morning after drinking?" or "Have you ever acted foolishly while drinking, or felt that you talked too much while under the influence of alcohol?" The theory was that if you answered "yes" to 18 or more questions, you were a potential alcoholic. This questionnaire was given out to 200 of our supervisors, none of whom was known as a problem drinker. When the questionnaires were returned and evaluated, 192 of these men were proved, theoretically, to be potential alcoholics. Of the remaining eight, four were known to be total abstainers, and two more were Christian Scientists. It is obvious that little value can be attached to this survey, except that it made people cognizant of the fact that there is an alcoholic problem.

For the purpose of actual analysis and treatment we have, however, made use of the following classification of problem drinkers:

1. The chronic excessive drinkers. This group contains the individual who drinks alcoholic beverage in excess of the amount we normally consider sufficient "just to be convivial." His drinking may even lead him to what we call the "culpable" stage. He usually does his drinking after he leaves work, or on week ends, and he may have a hangover the next day or feel ill. All of this affects his absentee record and interferes with his ability to work. This can be corrected in most cases by a direct warning of loss of job.

2. The reactive drinkers. This group comprises the people who may or may not be in the habit of drinking small quantities of alcohol. Those who do drink never go beyond the "convivial" stage. But when some difficulty, either at home or at work, creates in these people an acute psychic disturbance, they turn to alcohol for release, and will become severe alcoholics while the disturbance lasts. They usually can be helped by simply locating and removing the source of the disturbance, and by psychiatric therapy.

3. The neurotic or psychotic drinkers. This is the group in which we may find the chronic addicted drinker who is likely to end up on "skid row" or in a psychopathic hospital. In our experience, he is the most difficult type to handle, and the least promising subject for rehabilitation, except in the early stages.

Looking over all the surveys, published and unpublished, that have been made available to us, we find most of them inaccurate. The reason, we believe, is obvious. Since there is no tested and reliable yardstick for measuring the various types of problem drinkers, or even for determining what a problem drinker is, we cannot get positive results. But this is not to discredit the survey method in itself. For example, it is relatively simple to make a survey of tuberculosis. X-rays are taken, are re-checked, if necessary, and the result may be 99% accurate for any group. A diabetic survey can easily be made by the process of urine examination or by the quicker blood method. And, of course, a survey of syphilis easily may be made by means of blood specimens. The distinction is that these surveys do not rely on the subject to provide his own history, since laboratory tests keep the whole survey on the objective level. On the other hand, the alcoholic problem, as handled by the questionnaire methods in most surveys, is necessarily subjective. Because of the social aspects of alcoholism, and also because a great many problem drinkers are liars, it becomes more and more difficult to analyze this sort of survey.

Here are several examples of such surveys, and their analyses:

(A) Yale Studies. This most commonly quoted survey provides statistics indicating that 3% of the population are problem drinkers. Only a small sample of the population was used. Since at that time figures showed that 62,000,000 peo-

Presented at the Institute on Alcoholism, University of Buffalo, September 24, 1954.

ple were employed, it was concluded that approximately 1,860,000 of them were problem drinkers. The automatic assumption that the same percentage holds for the working population as for the general public is erroneous. First, it is obvious that the severe alcoholic—skid row type—is unemployable. Second, the real psychotics are quite often confined to psychopathic institutions and are, therefore, not employed. Thus, the percentage of alcoholics in the industrial group is reduced a great deal. Lastly, there are the drinkers who seem to be heavy drinkers but who hold their liquor and do not lose time or allow it to interfere with their production. These might possibly be problem drinkers outside of industry, but they are not problems on the job.

(B) Ipsen, Moore, and Alexander Surveys. These surveys were based on medical examiner's reports and showed that 1.2% of the population were alcoholics. This meant that out of a working population of 62,000,000 there were approximately 744,000 alcoholics in industry. We question these figures and feel that the method of compiling them was inaccurate. Since many of the medical examiners in this country are political appointees, and some of them have had little, if any, experience with alcoholic cases, most of their diagnoses are arrived at from hearsay evidence, or general knowledge.

(C) Industrial Medical Association Survey of 1950. A questionnaire was sent to 3,000 industries. A total of 380 answers was received. Of these, 13 gave no pertinent informa'ion, while 37 claimed that there was no alcoholic problem in their industries. This leaves 330 answers, or approximately 10%, to be dealt with. In general, all the questions were vaguely and poorly answered. The only conclusion to be reached is that the whole subject was inadequately handled by industry.

(D) Opinion Research Corporation, Princeton, New Jersey, 1952. This survey was requested by the Licensed Beverage Industries. Of the 433 corporations interviewed, 84% claimed they had no alcoholic problem. The method of analysis was that of simple interview, lasting anywhere from a few minutes to an hour. The interviewer, who was from the Research Corporation, talked with an executive or a plant superintendent, without having any recourse to Medical Department personnel analysis or to the records of the corporation, and even without finding out if the corporation was, or had been, interested in the alcoholics in the organization. It is known that the investigator would enter a plant, stop to chat with one of the minor executives, and ask him point blank if he knew of any problem in his plant due to alcohol. The executive would then think a minute, and say he knew of none. Then, the research worker simply noted down the name of the plant and the number of employees, and recorded: "no alcoholic problem." We wish it were as simple as that to make an analysis and survey.

It is impossible to predict, or to estimate, the cost of alcoholism to industry due to lost time, sickness benefits, increased accidents, or early retirements. The Yale group offers the following figures. Twenty-two working days were lost annually, owing to absenteeism, by the alcoholic. Two days more were lost because of other illnesses aggravated or caused by alcoholism, making a total of 24 days. The Yale group also cited the figure of 1,500 fatal accidents on the job which, it was claimed, were due directly to alcohol. Such figures are open to question. We can use them as a basis for discussion, but cannot consider them as actual facts.

In order to obtain some reliable figures in one industry of 1,800 employees, we checked over all the fatal injuries for a period of 15 years. In not one case of injury did we find that it was caused, either directly or indirectly, by alcoholism. We also checked through all non-fatal injuries for the past five years, and found that while none could be attributed to alcoholism, there were two which might be considered as due to the man's inattention, and to his admission that he had had a few drinks the night before. In this company, every employee who was out of work for one or two days periodically had been checked carefully either by a company doctor or a nurse, at his home. In less than 0.1% of these cases did we find any difficulties that might possibly be attributed to alcoholism. From such a small group as this, there can be no conclusive deductions. Loss of production varies in degree and in amount. Loss of money to a corporation owing to lost time also varies, so that no accurate figure can be given. Even an estimate is impossible, because some corporations pay employees (excepting alcoholics) when they are out sick from the first day onward; others do not begin payment until the employee has been out more than three or four days. Still others pay no sick benefits, while some pay benefits even if the case is known to be due to alcohol. With such a variation as this, even when lost days can be estimated, it is impossible to figure cost without analyzing each corporation separately.

REHABILITATION of the alcoholic in industry is a complex, cooperative procedure. All the existing medical and social agencies come into play. The alcoholic committees, the psychiatrists, the sociologists, the AA's, the family physician have a hand in this problem. It is not likely that any one of these agencies working without the aid of one or two of the others can do a thorough job. The most publicized rehabilitation groups in industry are maintained by Eastman Kodak, Consolidated Edison of New York, and Allis-Chalmers. These are frequently quoted and carefully watched; but in making our surveys, we have found that there are some 80 corporations that have plans, complete or incomplete, for the rehabilitation of their alcoholics. By one such plan, which has already been reported and will probably be reported again, the rehabilitation group, working for a three-year period (with an average population of 23,000) handled 82 cases of alcoholism.

Whether these cases included all the problem drinkers in the industry could not be determined. In any case, the figure approximates 0.4% of the number of workers, much lower than the Yale 3%. Analysis shows that five of these cases were treated as chronic excessive drinkers, and all were rehabilitated. Seven reactive alcoholics were also returned to their jobs. As stated before, these are easy to control with proper handling. Of the remaining 70 cases, who were alcoholics with neuroses or psychoses, 18 were retired, 37 were terminated with allowances, nine were terminated without allowances, and only six were returned to duty. In other words, 64 were let out and only six rehabilitated—not astounding, but a beginning.

In considering the problem of the value to industry of a rehabilitation program, two main questions always come up. The first is—what will it cost? The second—what will we get out of it? For a small industry, the cost of setting up such a program is at present rather excessive. In large industries, where medical and personnel departments are already established, a rehabilitation program can be worked in without much added expense. We must take into consideration the cost of paying sick benefits to the employees involved while the program is going on; the cost of lost time during investigation; the cost to the medical and personnel departments because of the amount of time required to handle each case; and also outside expenses, such as the cost of psychological and psychiatric studies, along with the investigations of allied groups. The follow-up and checking on these cases is also expensive. The net gain to a corporation cannot easily be shown in dollars and cents. If a corporation fires the employee, that ends all the costs. There is no repercussion from the outside because general public opinion is against the alcoholic. The employer suffers no loss of reputation or esteem, and therefore his actual loss is simply the cost of training another employee. In some corporations, this cost may be less than the cost of trying to rehabilitate, since most corporations already have apprentice systems which can furnish employees ready to take over at any time. It seems that the cost of retiring alcoholic employees, or of paying their sickness benefits or termination costs, is hard to sell the management. It is an added cost without value to the corporation, and of questionable benefit to the problem drinker. We believe that the rehabilitation program should be sold more as a humanitarian issue. The vast majority of problem drinkers can be salvaged, and they should be salvaged without regard to the cost either way.

We are inclined to think, from a psychiatric point of view, that alcoholics are sick people. However, speaking as industrial physicians, we think calling an employee who has been absent because of alcoholism a "sick person" is a dangerous thing. It puts such an employee in the position of being allowed to go on a binge, not to show up on Monday morning, to say "I was drunk last night and I've got a hangover and I'm sick, so what?"—and then expect to collect sick benefits. The only control industry has over such cases is the pocketbook, and once this control is lost one might as well give up all possibility of rehabilitation. Therefore, we recommend the following method: If an employee is an alcoholic but is willing to be rehabilitated and to follow the advice of the medical or personnel department honestly, we should consider him ill during this period. If he feels that he does not want to follow the program, refuses to have anything to do with the medical or personnel department, and continues to abuse himself with alcohol, we should call it abuse, and not illness, and permit him to be disciplined by management.

IN THE New England Electric System a program for the detection and handling of problem drinkers was set up after the following preliminary steps:

1. We devised a complete compact program that could function easily and did not depend on the supervision of only one person.

2. We got top management to approve it and to agree to follow it through.

3. Before putting the program into operation, supervisor's meetings were held throughout the various companies, and affiliates. At these meetings the problem was explained, and the supervisors were told what could be done to help the drinker, and how they could show him that we were out to give him this help and not to spy on or condemn him.

4. Finally—the most difficult step—we set out to teach the supervisors, particularly first line foreman, how to detect the problem drinker. This is not easy, and it is a permanent problem. The foremen must be taught to watch for unusual recurring absences, how to detect the hangover, etc.

The program itself works as follows:

When a problem drinker is detected, he is sent to the Medical Department. The physician interviews him, and discusses his problem, explaining the purpose of the program and the results we hope to obtain. He emphasizes the fact that the full cooperation of the employee is necessary for success. If the employee shows a willingness to cooperate and admits his problem, we then continue. If he denies that the problem exists, or refuses to cooperate, he is sent back to his supervisor for whatever disciplinary measures are appropriate. In some cases, it takes two or three tries before we get the case.

The next step is to admit the patient to a good clinic (in Boston we use the Pratt Diagnostic Clinic) for several days of observation. He is checked carefully physically and also interviewed by the psychiatric staff. At the same time, a member of the AA (we have one on our staff) is alerted and he goes to work on patient, family, and fellow workers—hoping to get the employee to join AA after he gets out of the clinic.

When the problem drinker is detected, he is suspended and his salary stopped. After his medical interview, if he cooperates with the analysis, treatment, and rehabilitation, his bene-

fits are automatically restored. He is put on sick leave and is kept on this as long as he cooperates with the Medical Department. All costs at the clinic, etc., are paid by the company. (These average about $250.00 per patient.) If the employee needs further medical or psychiatric treatment, he is referred to an outside physician and all costs are borne by the employee.

When the doctor feels that the employee has become well adjusted to his condition and treatment, he is allowed to return to work with the understanding that if he is absent for any reason, he must give a legitimate excuse, which will be checked. If ill, he must be under a physician's care. If he is away from work without a proved cause, or the foreman detects the use of alcohol, the employee is again suspended and sent back to the Medical Department. This time, the Medical Department advises the employee that he is in serious trouble and needs more intensive treatment. It recommends that he join the AA or go to an alcoholic clinic for treatment. If the employee refuses, he is then removed from the payroll. If he goes to the clinic for treatment or to the AA, he is reinstated on sick leave and returned to the job, as before—with a definite warning that the next time he will be dropped from the payroll.

The function of the physician or personnel man in the company is important but has a definite limit. He must first convince the employee that he and the company actually want to help him, and he must get the employee to admit that he, the employee, has an alcoholic problem. Then, the employee must be guided through the clinics and the AA. Beyond this point, the physician or personnel man must stop. He must not try to treat the employee psychiatrically or medically. He must leave all this up to the outside physician and the agencies and just follow the course on the sidelines.

This program is still in its infancy and has only been in operation in this form for several years. Therefore, the results are impossible to evaluate now. But to date, we have had some dramatic and gratifying rehabilitations, with the employee still on *his* job.

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Detective Story

Death struck six times. Mystery surrounded the collapse of the workers who, one at a time, fell victim to a criminal no one could see. Actual cause of death was ascribed to heart attacks. But what caused them baffled the sleuths assigned to the case. They only knew that danger lurked somewhere in the shop. It had to be found and overcome. No dum-da-dum-dum theme punctuated the investigation. No cigar-smoking, derby-hatted plainclothes man nor clever, gimlet-eyed dilettante criminologist could have solved the case. While it was an inside job, it required the full facilities of scientific investigation to trap the criminal and prevent future deaths, an achievement in a battle that had no end. The discovery of the cause of the deaths was the work of a special laboratory in Jefferson Medical College, under the direction of DR. HEINRICH BRIEGER, Professor of Industrial Medicine. The laboratory, in checking the ingredients with which the workers dealt, discovered antimony trisulfide dust, inhaled on the job, directly affected the heart muscles, and induced the attacks. Antimony was used, paradoxically, to avoid danger from lead poisoning but it proved to be just as deadly. When its guilt was verified, its use was halted. This is only one of the dramatic victories of the Jefferson laboratory. It is faced daily with medical problems arising from industrial and occupational causes. Through its successful investigations, it has saved thousands of lives in Philadelphia alone, and has contributed immeasurably to the safe operation of hundreds of plants, without fanfare. DR. BRIEGER and his aides deserve high praise for their efforts in making Philadelphia a safer place in which to work." —*Philadelphia News*, April 8, 1955.

The Status of the Surgical Treatment of Hypertension and Peripheral Vascular Disease

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Chicago

FOR ALMOST 30 years operations on the sympathetic nervous system have had their ups and downs, and during all this time the whole question of the surgery of the sympathetic system has had its bitter opponents and its enthusiastic supporters. Most arguments are strengthened by overstatements, and in this connection also it is likely that the most acceptable answer lies somewhere between the two.

My earliest connection with this subject was in 1929, when I was an assistant to Dr. Adson. At that time the surgery of the autonomic system was just beginning to come to the fore, propelled by the ideas of George Brown and the technique of Adson. The surgery then was confined to the peripheral vascular system and concerned Raynaud's disease and thrombo-angiitis obliterans. Great emphasis was placed on the vasomotor index as an indication for operation. It was felt that those with a high vasomotor index, i.e., those with a large element of vascular spasm, would benefit most by a sympathectomy which would release the spasm. Actual mechanical obstruction to blood vessels in those days contraindicated sympathectomy. Enthusiastic reports flowed in from all over the country and it became a surgical fad. Unfortunately, some of the early predictions did not come true. Hunter and Royle, of Sydney, Australia, had suggested a dual enervation of muscles in which the sympathetic system influenced its tonic properties. In this city, some spastic children were operated on, having a ramisectomy or sectioning of the rami to the lumbar ganglia. Unhappily, the results did not support the hypothesis nor the anticipated benefits. Referring physicians became cautious and frankly skeptical when anticipated results in Raynaud's and Buerger's disease were not realized. The reasons for failure are now familiar to all—improper selection of cases and inadequate training of the individual performing the surgery. It is impossible to obtain vasodilatation of the extremities by removing lymph glands and pieces of fibrous tissue. Adverse reports appeared in the literature and the medical profession became indisposed toward sympathetic nerve surgery. In certain special medical centres the work went on under scientific control. Certain problems were solved or at least investigated; the controversy between preganglionic and postganglionic sympathectomy was thrashed out but is still not settled. In the meantime Kuntz and his co-workers made extensive studies of the anatomical pathways and others made studies of specific operative procedures, regeneration, incompleteness of operation, and pharmacology.

The second World War gave this type of investigation a great impetus by providing a large number of cases in which sympathectomy could be shown to be indicated and, just as important, it provided a hitherto untrained group of young men an opportunity to perform many procedures under the control of the few already adequately trained. Lumbar sympathectomy was carried out in acute occlusion of major peripheral blood vessels where amputation seemed the only other solution. Reflex osteoporosis, causalgia and frostbite were a few of the more common conditions. Thus a much better understanding of what could be expected from sympathectomy developed. In the meantime there were indications for performing sympathectomy for far advanced arteriosclerotic peripheral vascular disease. Thus the treatment of peripheral vascular disease by surgery of the sympathetic nervous system ran the gamut from enthusiasm through despair back to solid acceptance on a middle ground.

I cannot help the interjection that in 1955 there seem to be many more indications for this type of surgery for peripheral vascular disease than there were in 1932, and that it seems more important to know what does not give good results than what does. In other words, failure seems to count much more heavily than success, and therefore the period during which sympathetic surgery was popularized but poorly carried out left it in undeserved disrepute.

TODAY there are many more indications for interference with the sympathetic nervous system than ever before. In those centers where peripheral vascular work is well understood, sympathectomy is used in a variety of conditions in which the collateral circulation must be extended. Legs have been saved that were threatened by gangrene, either arteriosclerotic or embolic, and in others amputations have been carried out at much more peripheral levels. Many patients with intermittent claudication have, through sympathectomy, been able to continue to earn their

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living and to walk. The pain and distress of reflex dystrophy and causalgia have been almost completely reduced. Amputation stump neuralgia and phantom limb, however, still continue to defy a satisfactory solution.

The upper extremity has always lagged behind the lower both in the number of presenting cases and in satisfactory postoperative results. Peripheral vascular disease is of course not only more frequent in the lower extremity but the treatment is much more satisfactory. The reasons for failure in the upper extremity are both anatomical and technical. On the anatomical side is the great difficulty of obtaining a complete sympathectomy for the upper extremity. There are many more variations in the paths taken by the fibres and, whereas the ordinary sympathectomy for the lower extremity is preganglionic, that in the upper extremity is usually mixed pre- and postganglionic. It is well known that structures such as blood vessels that are deprived of their postganglionic nerve fibres become much more sensitive to circulating hormones. So that after degeneration had taken place circulating adrenalin produced marked spasm of blood vessels. This stimulated Smithwick and White to devise a preganglionic sympathectomy for the upper extremity. This has still not solved the difficulty of inferior results in the upper extremity. Completeness of the sympathectomy is the essence of the problem and next to it comes the prevention of regeneration of sympathetic nerve fibres. The controversy of pre *versus* postganglionic sympathectomy has lost a great deal of its importance. Sympathectomies should be followed by tests for sweating; "recurrences" will be found to be associated with incomplete sympathectomy, which can be "discovered" immediately after operation. The second reason for the poor results is the surgical technical difficulty which is much more than for the lumbar chain. The approach to the upper thoracic ganglia is extrapleural either by the anterior or posterior approach. Both involve extensive dissections, that from the anterior being quite formidable.

THE approach to the lumbar chain is well known. It is usually carried out at one sitting through two incisions in the anterolateral abdominal wall with the peritoneum retracted forward. Spinal anesthesia gives excellent exposure and relaxation. Other surgeons do a two-stage lumbar approach which is also carried to the chain extraperitoneally. This approach has an advantage in that it is useful if the thigh has to be sympathectomized. If this is the case the 12th thoracic and 1st lumbar ganglia must be removed. To do this the 12th rib should be removed, hence the advantage of the lumbar approach. However, as of November, 1954, at least one article appeared claiming, on the basis of observation and tests, that there was no advantage in this over the usual lumbar sympathectomy.

Hypertension, and especially its surgical treatment, has suffered also from its ups and downs; at the present moment it is in the phase that peripheral vascular sympathectomy was before the War, i.e., down. Splanchnicotomy had been tried in 1928 and 1929 for other conditions but its effect on blood pressure was noted. At this time Dr. Adson tried anterior root section of T6-12 in order to influence the splanchnic bed. Shortly thereafter W. McCraig and others performed splanchnicotomy with intriguing effects. Gradually others took it up and worked on the problem—Adson, Peet, Smithwick, and White. The problem became the selection of cases and the selection of the surgical procedure, for there could be no doubt that many patients improved. Adson advocated the subdiaphragmatic operation, Peet the supradiaphragmatic, while Smithwick wisely combined the two. Others, such as Grimson, went on to propose complete sympathectomy. A great deal came of this work, and one can say that at this time it seems that the Smithwick transdiaphragmatic procedure gives good results without the morbidity of the complete sympathectomy.

As a result of all this surgical activity physicians began to take an unusual interest in hypertension especially the essential type, i.e., the kind that cannot be ascribed to organic disease of the kidney, the adrenals, or the aorta. Large numbers of cases of essential hypertension were studied especially in an attempt to predict the outcome of surgery, for it was apparent that the surgically treated cases did better than the others. Finally cases were grouped according to a fundoscopic examination by Keith and Wagoner and the life expectancy of these cases was estimated based on a follow-up study of a large series of cases seen and followed by the Mayo Clinic group. In the main the grouping of the cases showed some correlation between the diastolic pressure, the fundus changes and the mortality rate.

A great deal of knowledge of hypertension accumulated as the result of the interest of the surgeons and methods of study were set up. My own method consists of a series of tests which can be accommodated on one sheet. The method was evolved in 1939; all the tests have been run ever since. This is not necessarily because it is the best way but that a consistent pattern has been employed from which certain deductions can now be made. The completed sheet will indicate renal disease, flexibility of the blood pressure and the condition of the heart. Special tests for pheochromocytoma are made by careful regetin test. The femoral pulses are felt, for unhappily a case of coarctation of the aorta may be mistaken for essential hypertension. With a flexible blood pressure in a case that does not respond immediately to good medical management, sympathectomy gives the only chance of success and the Smithwick type of procedure is preferred.

The hypotensive drugs which can be prescribed by the referring physician have altered the status of surgery in hypertension. Now that hypertension can be modified by drugs, few cases are referred for surgery. You are all aware of these drugs from the relatively harmless rauwolfia

through the more toxic veratrun and hydralazine to the almost dangerous hexamethonium. Some of these drugs are hard to control, and the undesirable side effects are just beginning to become noticeable. Besides, the administration of these drugs does not alter the patient in any way and it actually only controls a symptom, namely the blood pressure. This is somewhat analgous to giving a patient with phthisis a cough medicine so that he will not cough blood, or giving a patient with "epilepsy" dilantin so that he will not have fits. In addition there are many patients who are mentally unable to cope with the long continued administration of drugs, and there are others in whom the disease progresses in spite of the hypotensive drugs. Both types of patient should be referred for study with the idea of sympathectomy as soon as it is apparent that progress is unsatisfactory under medical management. There is a tendency on the part of the medical man to try to avoid surgery at all costs. The mortality rate from this sort of thing is higher than that of surgery. Physicians are often reluctant to refer cases because the blood pressure may climb back to pre-operative levels in the course of a few months. Although this is occasionally true the usual prognosis for their diastolic pressure no longer holds. They continue to live happy lives in spite of what the blood pressure cuff shows. In other words, the criterion of success is survival which surgery achieves better than anything else.

I CAN LOOK back on a very small series of hypertensives, 150 odd to be exact. They were referred to me by various physicians, three or four at the Presbyterian Hospital, and various others in adjoining counties. I live with these people, some of them are friends, others are well known; some come in and out of the hospital for other reasons; they go back to their own physicians when things go wrong. Also I have kept careful track of these patients and have recorded their deaths. For instance, since 1939 three have died from ruptured intracranial aneurysms and in each case we were able to obtain postmortem examinations, two of which were carried out at the Presbyterian Hospital. My colleagues and I agree that the remarkable thing is survival. Patients who were invalids in 1939, 1940 or 1941 are still doing an honest day's work with few if any complaints. I can look back on five or six patients with malignant hypertension operated on in the last four years, since the drugs came out, with nitrogen and potassium retention who were literally nursed into shape for operation. If one can add two or three or four years to the life of such a person, I believe it is worth-while. Even some cases in which the kidneys showed serious impairment have evidenced marked improvement of their function after operation. Kidney function has improved and eye grounds have returned to near normal. But most remarkable is that headache and fatigue have disappeared.

There are certain drawbacks to any extensive surgery but these are diminishing day by day—postoperative pain, orthostatic hypotension, two or three months of convalescence because of mental depression. These are not too high a price for many years of almost normal living.

The present state of surgery for hypertension is in abeyance because of supposed relief by the administration of poorly understood hypotensive drugs. Some patients have been allowed to succumb in spite of these drugs, others cannot be controlled by them, and still others are psychologically unable to adjust to the regime. From these there will be a return to surgery for hypertension.

One must not lose sight of the fact that the criterion of medical care is useful survival, and so far surgery for hypertension is the only means that can assure this.

(122 South Michigan Avenue.)

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"Enter We Must"

I PLEAD that the leaders in industry recognize the importance of a wider excursion of their Medical Departments into collective problems and that they afford the opportunity. It will be sound economy and good investment. Enter we must, for if we do not meet these problems from within, from without will come the experts—experts equipped with Marxian theories, loud voices, simian accusations, questions, and no answers. Voices growing ever louder because of our silence. The ears of the "More Abundant Lifers" will hear and believe. The thirty-percenters will support, with fanfare and much cheering. More crack-pot legislation will be born. The 20% of a man's time that is given to earning his living will be acclaimed the cause of all mortality, and his employer will be held liable for all the ills to which, for countless ages, man has fallen heir—from pip to pox. With shrugs of resignation, we will blame crooked politics instead of blaming our own inability to control such things. Earnest physicians, armed with truth and possessing the tradition of a broad view, can go far in promoting middle-of-the-road thoughts. As earnest citizens, they can and should go far in checking evils that may befall their nation. The basis of medicine is sympathy and the desire to help others, and whatever is done with this end must be called medicine.

—From "Medicine—the Guide and Measure of Safety," by WILLIAM J. FULTON, M.D., in *Industrial Medicine*, 7:8, 500 (August) 1938.

1955 Industrial Health Conference

BUFFALO, NEW YORK
April 23-29, 1955

THE 1955 Industrial Health Conference at Buffalo, New York, April 23-29, brought together the Fortieth Annual Meeting of the INDUSTRIAL MEDICAL ASSOCIATION, the Sixteenth Annual Meeting of the AMERICAN INDUSTRIAL HYGIENE ASSOCIATION, the Seventeenth Annual Meeting of the AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, the Thirteenth Annual Meeting of the AMERICAN ASSOCIATION OF INDUSTRIAL NURSES, and the Twelfth Annual Meeting of the AMERICAN ASSOCIATION OF INDUSTRIAL DENTISTS. The Conference was well received by the members and guests of all the participating organizations. The total registration was considerably in excess of 2,000. The IMA Hospital Clinics were attended by more than 300 at one session, more than 150 at the other; there was an overflow crowd Tuesday evening at the session on Human Relations; 350 IMA members were present at the Annual Business Meeting Wednesday afternoon.

The scientific program was unusually interesting. The Industrial Hygiene Association sessions had 73 formal presentations, of which 62 were abstracted by their authors for distribution in advance of the Meeting. Many of the presentations, from all of the participating groups, will find eventual publication in this Journal, or the *AMA Archives of Industrial Health*, the *American Industrial Hygiene Association Quarterly*, and the *Journal of the American Association of Industrial Nurses*.

Highlights of the week were the presentations of the various Association Awards. At the AIHA Annual Banquet on Wednesday evening, April 27, JAMES H. STERNER, M.D., Medical Director, Eastman Kodak Company, was the recipient of the 1955 Donald E. Cummings Memorial Award. DR. STERNER was the author of the Cummings Memorial Lecture, given at the Banquet. Four awards were made at the IMA Banquet on the same evening. HENRY S. BROWN, M.D., Past-President, who made the presentation of the 1954 William S. Knudsen Award to NILS PAUL LARSEN, M.D., was selected to bestow the 1955 Knudsen Award upon GEORGE H. GEHRMANN. DR. BROWN said:

"AGAIN I am pleased and highly honored, in behalf of this Association, to present to one of my fellows the much coveted William S. Knudsen Award for 1955....

"With the rapid growth of the Association and the number of outstanding personages in the field of industrial medicine to-day the task of selection becomes increasingly difficult. After long deliberation, study and thought the committee has chosen a physician who recently completed 40 years of outstanding industrial medical work with one company. Born October 11, 1890, in Norwalk, Connecticut, he attended the local high school and then entered Long Island College of Medicine in Brooklyn, New York, from which he graduated, serving an internship in the Long Island Hospital. In 1915, at the age of 25 he was employed as a plant physician at the E. I. Du Pont de Nemours Company in Wilmington, Delaware. He was not there long when he was called

Past-Presidents, Industrial Medical Association
Seated, left to right: Harold A. Vonachen, William A. Sawyer, Clarence D. Selby, Harvey Bartle, Floyd E. Shaffer, Royd R. Sayers, Robert Collier Page, Kieffer Davis, Edward C. Holmblad, Melvin N. Newquist, Frederick W. Slobe. Standing, left to right: McIver Woody, George F. Wilkins, Henry S. Brown, A. G. Kammer, Edward H. Carleton.

Dr. Gehrmann, Dr. Brown, and the William S. Knudsen Award.

Dr. Hughes, the Meritorious Service Award, and Dr. Irvin.

up for military service, having enrolled in the Army Medical Corps. He was assigned as battalion medical officer to the 57th division of the British Army where he served until the end of the war. He was released in 1918 and returned to the Du Pont Company, where he recently attained the mandatory retirement age of 65.

"He is a fellow of the American College of Physicians, but, in addition to his acknowledged skill as clinician and medical administrator, he is also an outstanding industrial chemist and toxicologist. In 1926 he founded the Haskell Laboratory of Industrial Toxicology, which is now an important integral part of the Du Pont medical and research organization.

"Among the various boards and committees of which he is a prominent member are the Conference Board of Physicians in Industry, the Chemical Section of the National Safety Council, the International Association of Industrial Accident Boards and Commissions, and the Committee on Industrial Medicine and Surgery of the American College of Surgeons.

"His writings are voluminous, and include many articles on subjects in clinical medicine and numerous others on chemical toxicology, which represent long hours of study and research.

"In 1943 he engaged a psychiatrist on his medical staff, recognizing in a practical way the important part emotional stress plays in dealing with the inefficient and ailing worker. Following his lead, the employment of psychiatrists on industrial medical staffs is now common practice.

"In 1945 he became interested in the problem of alcoholism in industry and devised a plan for

Dr. Kieffer Davis
Incoming IMA President.

Dr. Robert Collier Page
Retiring IMA President.

Dr. McCahan, the Health Achievement in Industry Award, Dr. Gunn.

Dr. Mallery, Dr. Durham, and the Citation for Merit in Authorship.

Monday Noon Luncheon Meeting of the Occupational Health Institute.

dealing with it which has proved satisfactory in rehabilitating 65% of those who were treated. His chapter on 'Rehabilitation of the Alcoholic in Industry,' in the latest work of the Du Pont medical staff, is a classic and is heartily recommended to all those who are searching for a solution to the problem.

"In recognition of one who has devoted a busy active life to industrial medicine in all its phases, thereby reflecting honor and professional acclaim on the principles for which this Association was founded and diligently seeks to exalt, it gives me great pleasure to present in behalf of the Industrial Medical Association to GEORGE HOWARD GEHRMANN, M.D., the William S. Knudsen Award for 1955."

The Award for Health Achievement in Industry was given to Sonoco Products Company of Hartsville, South Carolina. J. F. MCCAHAN, M.D., Chairman of the Award Committee, made the presentation, and EDWARD M. GUNN, M.D., Medical Director, represented the Company in its acceptance. The Company and its employee health services were described in this Journal last month (*Indust. Med. & Surg.*, 24:5, 209 (May) 1955).

The Award for Meritorious Service, presented by E. A. IRVIN, M.D., IMA Past-President, was given to JAMES P. HUGHES, M.D., Associate Professor of Preventive and Occupational Medicine, Ohio State University.

The Citation for Merit in Authorship, presented by O. T. MALLERY, JR., M.D., Chairman of the Committee, was awarded to J. RICHARD DURHAM, M.D., and LEMUEL C. MCGEE, M.D., for the discourse, "The Electrocardiogram in the Examination of the Industrial Worker" in *Annals of Internal Medicine*, 41:5, 918 (November) 1954. The Committee reviewing the literature of the year selected 12 manuscripts for special consideration. The final selection is made on the basis of the one manuscript which best applies to industrial medical practice, promises to serve as a permanent standard of reference in its special field, and illustrates scholarship stemming from industrial medical experience. As to the discourse which was chosen, the Committee found that it concisely reviews the experience of 16 years of in-plant medical experience; the authors emphasize to

Dr. Davis, IMA Fellowship Certificate, Dr. Kathryn Coleman Persing —Dr. Catherine Mangan Maguire, IMA Fellowship Certificate, Dr. Page.

physicians in industry the inestimable value of reviewing, correlating and analyzing medical records; the value of electrographic tracings is ably illustrated when they are used as an adjunct to careful clinical evaluation of the individual; and the work capacity and work record of the individual with degenerative vascular disease, his longevity and proper job placement are considered in the light of experience. In addition, the authors bring factual information to bear on an ever growing problem. This question is of importance to management, labor unions, industrial compensation commissioners, the physician, the individual worker: how best to use the productive capacities of workers with known cardiac disease, be it for initial employment or continued employment, after cardiovascular disease becomes evident.

THIS Conference was held under happy auspices. The Governor of New York, AVERELL HARRIMAN, in proclaiming the week of April 25-May 1 as "Industrial Health Week," said "This month, more than 3,000 members of the INDUSTRIAL MEDICAL ASSOCIATION, AMERICAN ASSOCIATION OF INDUSTRIAL NURSES, AMERICAN INDUSTRIAL HYGIENE ASSOCIATION, AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS, and AMERICAN ASSOCIATION OF INDUSTRIAL DENTISTS will convene in New York State for an Industrial Health Conference. It is fitting that at this time we pay tribute to these men and women who guard and protect the health and well-being of America's working force." PRESIDENT EISENHOWER sent a salutation, which DR. DAVIS read; and the newspapers and wire services were generous in the amount of space they gave to the various presentations. Probably the most widely mentioned scientific presentation was that of THOMAS L. SHIPMAN, M.D., Health Director of the Los Angeles Scientific Laboratory. DR. SHIPMAN characterized plutonium, released by splitting the uranium atom, as "the most dangerous element known to man." He said that a lethal dose of the intensely radioactive material could be taken with a single breath; that it is readily taken into the lungs and enters breaks in the skin; and that "a single particle in a room . . . . could constitute a significant hazard."

On Monday, April 25, the Occupational Health Institute held its first Annual Conference. This began with a breakfast meeting which stretched through the forenoon. The high point of the OHI sessions, was the luncheon meeting, at which the attendance exceeded all expectations, and at which it was demonstrated that the Occupational Health Institute and its place and purposes are close to the center of both management and medical interest. Following these sessions, and the several others at which the future of the Occupational Health Institute was considered, there remained no doubt that the OHI represents a necessary and permanent function of the Industrial Medical Association.

At the IMA Annual Meeting Wednesday afternoon, 107 members were presented with Certificates of Fellowship in the Industrial Medical Association. A list of those so honored appears elsewhere in these pages. Two women, CATHERINE MANGAN MAGUIRE, M.D., and KATHRYN COLEMAN PERSING, M.D., are among the newly designated Fellows.

THE election of Officers and Directors at the Annual meeting resulted as follows: E. S. JONES, M.D., became President-Elect; JEROME W. SHILLING, M.D., became First Vice-President; and H. W. LAWRENCE, M.D., was elected Second Vice-President. H. GLENN GARDINER, M.D., was elected Secretary, and EDWARD C. HOLMBLAD, M.D., was re-elected Treasurer and Managing Director. The appointment of RITA PACKER as Executive Secretary was confirmed. New Directors for 1955-57 were elected as follows: HARVEY CRUICKSHANK, M.D., Bell Telephone Company of Canada, Montreal; E. KERN LINDNER, M.D., Atlantic Refining Company, Philadelphia; WILLIAM D. NORWOOD, M.D., General Electric Company, Richland, Washington; JOHN F. SHRONTS, M.D., General Mills, Inc., Minneapolis, Minnesota; VINCENT T. WILLIAMS, M.D., Fisher Body, and Sheffield Steel, Kansas City, Missouri; and REX H. WILSON, M.D., B. F. Goodrich Rubber Company, Akron, Ohio.

KIEFFER DAVIS, M.D., the new IMA President, had pretty well completed his committee organization prior to the meeting. The new Committees and their members are included on pages 4 and 6 herein. On page 4 the list of the District Counselors includes, as to each, the address at which he may be reached. During the last several years the Committees and the District Counselors have established themselves as highly important in the continuing work of the Association.

At the Annual Meeting of the AMERICAN INDUSTRIAL HYGIENE ASSOCIATION the following were elected: President, N. V. HENDRICKS, Esso Research & Engineering Company; President-Elect, LESTER V. CRALLEY, Ph.D., Aluminum Company of America; Secretary, NORTON NELSON, Ph.D., New York University Medical Center; Treasurer, JOSEPH F. TREON, Ph.D., Kettering Laboratory; Executive Secretary, GEORGE D. CLAYTON, 140125 Prevost, Detroit. The AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS chose as its Chairman RALPH R. SULLIVAN, M.D., Oregon Board of Health. The new Officers of the AMERICAN ASSOCIATION OF INDUSTRIAL DENTISTS are: President, HOWARD E. DECAMP, D.D.S., Dental Director, Corning Glass Works; President-Elect, WALTER B. ELVERS, D.D.S., Assistant Medical Director, Bristol-Myers Company; Vice-President, ALAN H. GREENWOOD, D.D.S., Dental Director, Stix, Baer & Fuller; Secretary-Treasurer, EDWARD R. ASTON, D.D.S., Industrial Dental Consultant, Pennsylvania Department of Health. SARAH P. WAGNER, R.N., Superintendent of Nurses, Standard Oil Company (New Jersey), was re-elected President of the AMERICAN ASSOCIATION OF INDUSTRIAL NURSES. Among the Association's guests were physicians from Canada, Colombia, Cuba, Bolivia, Brazil, England, Hawaii, India, Italy, Mexico, Netherlands West Indies, and Puerto Rico.

Industrial Medical Association

President's Page

MORE PHYSICIANS were registered at the recent Annual Meeting of the Industrial Medical Association in Buffalo than ever before in the history of our organization. In addition to the usual large number of full-time and part-time physicians in industry, there was present a notable percentage of general practitioners and teachers and students of occupational medicine. This is significant, for it indicates that there is developing an ever-increasing interest on the part of doctors to seek, through such a postgraduate medium as our Industrial Health Conference, information that will aid them not only in daily general practice, but also in the proper handling of the growing numbers of industrial medical problems with which they are confronted.

Inasmuch as for years this has been the largest aggregation of doctors who have assembled primarily for the purpose of studying and advancing the practice of medicine in this industrial world of today, the Industrial Medical Association has been recognized and accepted as the fostering group of this particular and precise specialty. Ways and means through which information relative to the Association's objectives can be disseminated are many and are improving both in caliber and scope with the growth of our membership.

The IMA Annual Meeting which is held in conjunction with the Annual Meetings of the Industrial Nurses, the Industrial Hygienists, and the Industrial Dentists, is only one of the occasions during the year when doctors interested in occupational health gather to discuss, and learn more about, mutual problems. Frequent meetings, usually monthly, of each of the Association's 12 Component Societies convene for the same purpose. The demand for knowledge in this medical field has been so great that during the past few years seminars in increasing numbers, in which Association members are assisting, are being held at various medical schools throughout the country. In some instances these have become weekly practices, being attended not only by professors and students, but also by physicians of the area.

Some time ago a Speaker's Bureau was established at the IMA headquarters office in Chicago for the purpose of furnishing a qualified physician to speak on almost any industrial medical subject that might be desired. Through the reprint file maintained currently in the central office many special questions related to industrial health are answered, while others are referred to proper authorities within the Association.

These are but a few of the educational services now being made available to those interested in medical practices in industry. As the fostering group, the IMA is ready and willing to furnish its membership information relative to this phase of its many functions.

Kiggin Davis, M.D.

Industrial Medical Association

At the Fortieth Annual Meeting of the Industrial Medical Association, at Memorial Auditorium, Buffalo, on Wednesday, April 27, during the Industrial Health Conference, the following IMA members were designated Fellows:

Richard Martin Adams, M.D., Shreveport, Louisiana.
Norman Herman Amos, M.D., Battle Creek, Michigan.
George Iverson Baker, M.D., New York City.
Bertrand Bellemare, M.D., Quebec.
Sheldon Pratt Bliss, M.D., Jersey City, New Jersey.
Carl Henry Brust, M.D., Kansas City, Missouri.
Fred Arthur Bryan, M.D., Los Angeles.
Samuel Bennett Burk, M.D., New York City.
Henry Gustave Butker, M.D., New Orleans, Louisiana.
Henry Arthur Christian, M.D., Jersey City, New Jersey.
John Marbury Coe, M.D., Philadelphia.
Matt A. Connell, M.D., Picher, Oklahoma.
LeRoy Gerald Cooper, M.D., York, Pennsylvania.
Francis Clark Cretsinger, M.D., Kalamazoo, Michigan.
Loris Eugene Curtis, M.D., San Francisco.
Samuel Marshall Davenport, M.D., Kingston, Pennsylvania.
Fred Wellington Deardorff, M.D., Philadelphia.
Laurence Patrick Devlin, M.D., Philadelphia.
Corydon L. Ford DeVries, M.D., Lansing, Michigan.
Matthew John Drogowski, M.D., Freeland, Pennsylvania.
Niel Emler Eckelberry, M.D., New York City.
George Patterson Eddy, M.D., Niagara Falls, New York.
William Walker Edwards, M.D., Greenville, South Carolina.
Homer Schultz Elmquist, M.D., Los Angeles.
Harry Epstein, M.D., Pittsburgh.
Lloyd Marvin Farner, M.D., Seattle, Washington.
David Walter Fassett, M.D., Rochester, New York.
William Joseph Feehan, M.D., Kansas City, Kansas.
Horace Frank Flanders, M.D., Kansas City, Missouri.
James Rogers Fox, M.D., Minneapolis, Minnesota.
William Frederick Fox, M.D., Coplay, Pennsylvania.
Robert Clare Frantz, M.D., Wyomissing, Pennsylvania.
Harold Howard Gay, M.D., Midland, Michigan.
Hugh Clinton Fiske Gill, M.D., Baltimore, Maryland.
Bernard Justin Gilshannon, M.D., Bellingham, Washington.
William Lennis Green, M.D., Kalamazoo, Michigan.
Joseph Parker Griffin, M.D., Wilmington, Delaware.
Frank Peter Guidotti, M.D., New York City.
George Anderson Hardie, M.D., Rochester, New York.
Solon Earl Haynes, M.D., Kansas City, Missouri.
William Prettyman Hearn, Jr., M.D., Narberth, Penna.
Frederick George Helwig, M.D., Allentown, Pennsylvania.
Arthur Nesbit Houston, M.D., New Orleans, Louisiana.
Camp Stanley Huntington, M.D., Bartlesville, Oklahoma.
Samuel Maximilian Hyman, M.D., New York City.
Samuel Hicks John, Sr., M.D., Philadelphia.
Philip Johnson, M.D., Fairmont, West Virginia.
Robert Emmet Kelley, M.D., St. Louis, Missouri.
Thomas Kerr, Jr., M.D., Philadelphia.
Joseph Victor Klauder, M.D., Philadelphia.
Louis Kovitz, M.D., Kansas City, Missouri.
Jacob Morris Krich, M.D., Woodhaven, New York.
Mark Renton Leadbetter, M.D., Bloomsburgh, Pennsylvania.
Frank Edward Leder, M.D., Brooklyn, New York.
Cecil George Leitch, M.D., Kansas City, Missouri.
Terry Erastus Lilly, Jr., M.D., Kansas City, Missouri.
Carl Nathaniel Lindquist, M.D., Kansas City, Missouri.
Frank Lipcius, M.D., Prospect Park, Pennsylvania.
Joseph Allen Llewellyn, M.D., Butler, Pennsylvania.
John Mark Lynch, M.D., Bethesda, Maryland.
John Russell MacGregor, M.D., Parchment, Michigan.
Catherine Mangan Maguire, M.D., Pleasantville, New York.
William Fitzgerald McAnally, M.D., Pittsburgh.
George Prentiss McArdle, M.D., Omaha, Nebraska.
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Gilbert Bertram Meyers, M.D., Oreland, Pennsylvania.
Raymond Anthony Mezeka, M.D., St. Louis, Missouri.
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Samuel Timothy Nicholson, Jr., M.D., Pottstown, Penna.
John Ferdinand Oakley, M.D., New Orleans, Louisiana.
Rial Richardson Oglevie, M.D., Kansas City, Missouri.
Stuart Bailey Over, M.D., Tucson, Arizona.
Wilford Edison Park, M.D., Minneapolis, Minnesota.
George Armin Paul, M.D., Irvington, New Jersey.
Alfred William Pennington, M.D., Wilmington, Delaware.
Kathryn Coleman Persing, M.D., Jenkintown, Pennsylvania.
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Committee on Medical Care

It is the opinion of the Committee on Medical Care that those of us involved currently in trying to meet our country's medical needs should adopt a much more constructive and progressive attitude about possibilities for meeting these needs more efficiently and effectively. We feel there has been a tendency to underestimate the importance, implications and justifications of the evidence of consumer discontentment, and that too much energy and time have been spent trying to defend the *status quo*, and too little trying to accomplish the improvements that are possible. The desire of Americans to have good comprehensive medical service at a cost they can afford is reasonable.

As Americans, both physicians and the consumers of their services should prefer to see the practice of medicine remain a private enterprise. This can be assured if those who practice medicine will display the flexibility and progressiveness necessary to meet our population's changing medical needs.

Present personnel and facilities would be able to keep America healthy much more economically could a transition from the practice of curative medicine to that of preventive medicine be accomplished. In spite of the limited state of our present knowledge about health and its preservation and the prevention of disease, impressive economies in suffering, energy and money could be realized promptly would we spend a just proportion of our time trying to keep the healthy healthy rather than spend such a disproportionate amount in the care of the ill. As necessary as the latter is, physicians must learn to focus a more realistic amount of their attention on health instead of disease.

As doctors, we aspire to skill in the diagnosis and treatment of disease. When a patient is convinced he is ill, we want to discover and solve his problem or, if he has none, to convince him he is healthy. As a group, we have a patient—the public—who feels he has a problem. We owe him an objective analysis of the symptoms he recites, and if we find he does have a problem, we owe him our best efforts to help solve it. If we feel he has none, we owe him our best efforts to convince him he has none.

The swelling volume of the attempts to improve the quantity, quality, reasonableness and method of paying for medical care, and the multiplicity of proposed solutions to the problems involved attest to the need for positive, constructive and progressive action by the medical profession. We must listen better to what is being said to us and about us, read better what is being written to us and about us, and understand better the implications of what is being done that affects us if we are not to be accused, with justification, of failing in our responsibilities.

The members of the Committee on Medical Care feel that they would be presumptuous to sit in judgment upon each of the various trends to improve medical care, and that they would be unwise to advise the Association to go on record with respect to individual programs. It is rather our preference to urge the Industrial Medical Association to declare its confidence in certain fundamental principles, and to be willing to observe objectively, and with tolerance for the amount of time required to come to a fair conclusion, the programs proposed to meet these problems.

To us at this time the following principles would seem to merit the Association's endorsement:

1. The desirable goal is to make comprehensive high-grade medical care available to all on a prepayment plan, the care to be supplied by private interests except where for good reason it cannot be. Government participation in medical care should be no greater than necessary. In accordance with this principle, programs supplying comprehensive medical care indirectly would be preferable to those supplying it directly so long as a maximum amount of the program's cost could be returned in service with not more than a just proportion being consumed in administration or taken as profit by carriers.

2. Properly licensed physicians, ancillary medical personnel and medical facilities should purvey the indicated medical care.

3. Programs should be so designed as to assure continuance of those aspects of the patient-physician relationship proved by experience to be essential, aspects such as freedom in the choice of a physician and assurance of a confidential relationship with him.

4. Programs should not conflict with the established ethical concepts of the medical profession, but the profession should stand ready to review critically and objectively its own ethical standards in relation to their effects on our population's need for medical care.

5. In programs proposed, serious study should be made of the effects of deductible and co-insurance features to determine their potential influences on medical care plans.

6. Programs should eventually provide comprehensive high-grade medical care for everyone, so that while such programs for industrial workers undoubtedly will constitute valuable preliminary experience, we must on a long-range basis plan programs to meet the needs of all.

7. Ultimately, it is a person's own responsibility to bear the cost of maintaining his health and that of his family. While it may now be a wise and profitable investment for employers to support such efforts because of the likelihood that they would not otherwise be made, soon an acceptable American way must be found to make available to every individual comprehensive high-grade medical care for the cost of which provision will have been made consistently in advance out of earned income by the person responsible for the support of the individual's medical care. Special provisions will of course be needed for the prepayment of such costs incurred by the indigent, but the proper program should preclude the continued existence of a so-called "medically indigent" class.

It is the feeling of the Committee that many of the expensive inefficiencies of present medical care could be solved by greater grouping of facilities and efforts, greater attention to the practice of preventive medicine clinically, and greater effectiveness of two-way communications between the purveyors and consumers of medical care.

—Norbert J. Roberts, M.D., Chairman
Asa Barnes, M.D.
Frank P. Guidotti, M.D.
Bernard A. McAleer, M.D.
William B. Patterson, M.D.
Forrest E. Rieke, M.D.

Books

THE HUMAN ELEMENT IN INDUSTRIAL ACCIDENT PREVENTION: JOHN C. LARSON, with HARRY L. STEVENSON, ROBERT HAGOPIAN, JACK I. STERN, and ED. WILLIAMSON. Center for Safety Education, Division of General Education, New York University, New York 3, 1955; pp. 114; $2.00.

This publication is an attempt to report, analyze and interpret a selected portion of the literature related to the human factors in industrial accidents. It contains summaries of more than 100 abstracts of research projects which were selected from nearly 1000 references to safety in the literature.

The source material deals primarily with psychological and sociological studies of group behavior in the industrial setting as related to accidents, production, and absenteeism. Limited space is devoted to the clinical aspects of accident causation and prevention, while engineering accident research is considered only in general terms. The material was selected primarily on the basis of direct pertinence to industrial safety, with soundness, repetition and clarity as secondary considerations. Studies with relevance to industrial accident causation but which make no mention of safety, were not included.

The book is divided into two sections; the first relates to pre-employment safety efforts, and the second to accident prevention in employed workers, with emphasis on orientation and training programs. Also included are a critique of industrial accident research, a glossary of technical terms, a reference list to the reviewed literature, an additional bibliography of some 200 items, and a detailed index.

The basic tenet of the publication is that most industrial accidents can be attributed to human behavior. Accordingly, selection procedures, administrative policies, supervisory practices and techniques of improving morale and job satisfaction are viewed as the primary avenues of accident reduction. Specific ways of using these avenues of approach are discussed.

A special feature is a synopsis of conclusions at the beginning of each chapter. These may be summarized as follows:

1. The importance of such factors as reaction time, manual dexterity, and visual abilities in accident causation varies with the type of activity. More important than any of the above are such factors as anticipation, attention, proper lighting, fatigue, and a general predisposition to work in a safe manner.

2. Tests for intelligence, general coordination, hand-finger skill, arm-hand facility, and knowledge of mechanical operations do not identify accident-free workers from accident repeaters except at the extremes. These tests are of some help where exceptional abilities are essential to safe performance. To a certain extent an interest in mechanical things seems to be associated with safe workers.

3. Personality has a great deal to do with accidents. Of special importance are the degree of adjustment of the individual to everyday living and his ability to get along with others.

4. Physically impaired workers who have adjusted psychologically and vocationally to their limitations are good safety risks.

5. The degree of adjustment of a new employee to his new work setting is an important indication of his future work and accident record.

6. Well-trained employees usually have fewer accidents than poorly trained or maltrained workers.

7. Attention to machinery design, machine guards, plant layouts, lighting facilities, paint color, and house cleaning activities, have consistently benefited accident experience. Yet accidents continue to occur after all of these have been included in plant operations.

8. Peak accident hours generally coincide with peak fatigue hours. Ways of counteracting the effects of fatigue include sound proofing, carefully planned music programs, five-meal eating schedules, and periodic well-timed rest periods.

9. Accidents increase with decrease in employee morale. Specific ways of measuring and improving morale are discussed.

10. Accidents will continue to occur even with ideal hiring procedures, proper training programs, good supervision, ideal physical working conditions, good morale, and a generally satisfied work force. Further improvement in accident experience may be achieved through specific information about each individual worker, and a reliable history of past behavior and accidents.

This publication is an excellent work manual on the psychological and sociological aspects of accidents and should be of inestimable value to personnel and safety specialists for whom it is primarily intended.

It should also be of value to investigators and research workers in the field of accident causation and prevention. —M. S. SCHULZINGER, M.D.

Dental Care in Industry

INDUSTRIAL DENTISTRY AND PUBLIC HEALTH: ALFRED J. ASGIS, Editor, First District Dental Society of the State of New York, 1954, pp. 104.

"Dental care in industry is an unexplored field beset with many difficulties and pitfalls. It imposes upon dentists responsibilities of giving leadership and direction to a new professional endeavor. The dental profession must assert itself, here as well, to maintain standards of quality, the unity of dentistry, and its culture autonomy. The need for taking a stand is most imperative in these crucial and turbulent times. The views of President Oliver C. Carmichael, stressed in his 1952 Carnegie Foundation Report, deserve considerate attention by dentistry: '. . . . Many of our current problems fail of solution because those who understand the needs best lack the courage to undertake the solution. It is probable that wholly neutral instruction weakens rather than strengthens the ability to make commitments, and yet an education which does not strengthen the power of conviction, that does not inculcate a sense of social responsibility, fails in its duty to society.'

"This volume is prepared for general information. The purpose of the book is to serve as a source of reference. It is intended as an over-all statement of (a) the conception of occupational health in relation to dental public-health, community oral-health, and private dental practice, and (b) the role of dental care in industry.

"The content consists of addresses presented by the speakers. The appendices contain information and data on dental public-health and industrial dentistry."

This new book on industrial dentistry currently is the best reservoir of information on industrial dentistry that is available to all workers in occupational health.

The Knee—Well Covered

DISEASES OF THE KNEE: ANTHONY F. DE PALMA. J. B. Lippincott Co., Philadelphia, 1954.

This volume is an exhaustive coverage of diseases and injuries of the knee and related structures. The text, in excess of 800 pages, begins with a short review of the evolution and comparative anatomy of the knee joint, and then enters into a detailed anatomical treatise of all structures directly and indirectly related to the knee, including all of the minute variations.

The author draws freely from Steindler for the paragraph on the mechanics of the knee joint. The technical aspects of function are at times too technical to be readily comprehended. Correlation of function and anatomy, with diagrammatic illustrations, is used throughout the book to explain the mechanism of injury.

Affections of the menisci are more than adequately covered. Every possible tear or injury is illustrated and the predisposing factors for each are given. The complete gamut is run on congenital malformations. Many would take issue with some of the treatment as outlined in the case histories. Several patients with genu varum and genu valgum have been treated by osteotomy at a very early age. Yet in the same text the author states that conservative management in young children usually effects a cure. The pathology in some of the aforementioned cases is difficult to distinguish from the normal physiological variations.

There is one illustration of a stapling procedure, for correction of a unilateral genu valgum. One questions how this correction was obtained since the staples are neither well placed nor adequately inserted into the bone.

The sections dealing with traumatic lesions, loose bodies, and arthritis are presented in detail. All surgical approaches and procedures are well covered.

This volume is a complete, exhaustive, and detailed discussion of the knee joint. The illustrations and diagrams are well selected and comprise a substantial part of the book. The text tends to be repetitious throughout, which makes for tiresome and dull reading.

This book has a place only as a reference for the specialist or instructor. —C. C. GUY, M.D.

Hearts and Flowers

THE HEART STORY: 1953 Annual Report. The American Heart Association, New York, 1954, pp. 44.

On more than one occasion this Journal has reviewed with new extravagant praise the annual re-

ports of the American Heart Association. This present report, a copy of which already is in the hand of most physicians (thereby making any extensive review unnecessary), calls for no shifting of this position of admiration. Well does the American Heart Association know how to go about self-portraiture. Already you have a copy in hand but maybe you haven't read it. You might do well to mend your ways and read to your profit.

Deprivation and Stress

BEYOND THE GERM THEORY: The Roles of Deprivation and Stress in Health and Disease: IAGO GALDSTON, Editor. Health Education Council, New York, 1954, pp. 182, $4.00.

This book is far better than its title. It seems inescapable that the title was picked to the end of eye-catching, although the writer o fthe Foreword starts right off by saying "This book does not negate or deny the germ theory of disease." In spite of all that, a bit of cloudiness gathers bringing the implication that something is amiss as to the germ theory. In the big dictionary one definition of a "theory" is: "The general or abstract principles of any body of facts real or assumed; pure, as distinguished from applied, science or art; as, the 'theory' of music or of medicine." Again in that big book is the definition of the "germ theory": "The theory which attributes contagious and infectious diseases, suppurative lesions, etc., to the agency of germs or microparasites." If a theory is an appropriate term for something unproved, insofar as bacteria are concerned is it not high-time in the face of unassailable evidence of the rightness of what once was the germ theory, that the term "theory" be banished?

There was a time in that period (post Koch) of explosive developments in the demonstration of precise infectious agents as the cause of many diseases when almost every disease was appraised in terms of possible parasitic causation. Long ago it was established beyond peradventure that highly numerous diseases never might be embraced within the category of those to be labeled infections or infestations.

The authors of this book have made that discovery for themselves and bring about a striking presentation of some human disorders clearly apart from infection and always with emphasis on deprivation and stress. One section is devoted to nutritional deprivation and stress, contemplating such conditions as the vitamin deficiency diseases, deprivation in pregnancy, deprivation in old age. Another section confines itself to psychological deprivation. A third compartment relates to social stress and deprivation with its evil returns. The book ends with these striking statements: "These explorations are all prolegomena toward a better science of society—to the end that we have more accurate implements for social diagnosis and for social planning. We can achieve this only if we have a more precise knowledge of the interaction between the individual and his society."

Long before the end of the book is reached, this language appears: "Historically and realistically, public health was, is, and remains that discipline which does for the people in the realm of health that which the people cannot individually do for themselves." Devout is the wish that the promoters of public health might live up to that dictum.

Achievement

MEDICAL PROGRESS 1954: MORRIS FISHBEIN, M.D., The Blakiston Company, New York, 1954, pp. 345, $5.00.

Every physician is a physician first and an industrial physician second. Every physician is likely to indulge in a retrospective appraisal of the items of outstanding medical concern in any particular year and in this instance 1953. After 19 chapters of review of achievement in the several specialties, the editor, Dr. Morris Fishbein, picks from all, his own list of the year's peaks—among others the following:

Antipoliomyelitis Vaccine—Dr. Jonas E. Salk, of the University of Pittsburgh School of Medicine, has devised a vaccine of promise in the prevention of poliomyelitis. As known to all, this vaccine after rigid preliminary examination will be tried out in more than 200 counties throughout the United States during the present year with vaccination of 500,000 to 1,000,000 school children of the second grade. It is yet too early to be sure that this vaccine will meet the requirements of protection, but already it is an achievement. Even if the present vaccine proved a failure, enough has been accomplished to make almost certain that a little more work will bring this vaccine to satisfaction.

Hypertension and Cholesterol—From all the data available, one investigator concludes that our present high fat diet in the United States is scarcely favorable to the health of adult men.

Cortisone and Cancer—A major obstacle to investigative work on cancer has been the inability to grow human cancer tissue in the laboratory. Now it has come about that pretreatment of laboratory animals with cortisone enables transplanted human cancers to grow successfully.

Fatigue—Fatigue out of proportion to the work performed and fatigue that does not disappear with ordinary rest is chronic fatigue and not to be regarded as normal. The locale of chronic fatigue is in the mind. Muscular rest in this form is a waste of time.

Eruptions from Detergents—Dermatitis from cleaning agents is proving to constitute a large portion of the work of the dermatologist. Home treatment and professional overtreatment are proving undesirable. Housewives with young children are highly vulnerable apparently only because young children necessitate more work and more exposure.

Trichina Larvae—Radiation of pork with cobalt-60 effectively could produce sexual sterility of these parasites and, if universally applied to all pork, might bring to an end that pestiferous disease—trichinosis. There remains a possibility of unwanted flavor changes.

Gamma Globulin and Infectious Jaundice—Gamma globulin may have failed in the prevention of infantile paralysis, but is not without its usefulness such as in infectious jaundice.

Smoking and Cancer—The furore of the year relates to cigarette smoking as a possible cause of pulmonary cancer. The final answer is awaited and the wait may be long.

Hospital Care—More than 91,000,000 Americans are now voluntarily insured against the cost of hospital care.

This is a part of one man's listing. What are your own concepts of the outstanding attainments of medicine last year?

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At Last! Specialty Certification

THE American Board of Preventive Medicine, accepting as a *fait accompli* the certification of qualified industrial physicians as specialists, has issued an informative Bulletin for the guidance of those who have made application for consideration.

That portion of the Bulletin descriptive of occupational medicine certification is here quoted:

"Special Requirements in Occupational Medicine:

"1. Successful completion (after internship) of at least two academic years of graduate study in preventive and occupational medicine in a school of medicine, or a school of public health. The schools in which such instruction is provided shall be accredited for graduate study by the Council on Medical Education and Hospitals of the American Medical Association or the American Public Health Association, in accordance with the jurisdictions of these accrediting agencies; or training and study deemed by the Board to be substantially equivalent to such graduate study.

"2. Completion (after internship) of not less than one year, in addition to (1) above, of supervised experience (residency) in occupational medical practice in an industrial or medical organization. This residency shall provide planned instruction, observation and active participation in a comprehensive program of occupational medicine; or a comparable period of experience deemed by the Board to be substantially equivalent to such year of supervised experience.

"3. A period (after internship) of not less than three years, in addition to (1) and (2) above, of special training in or teaching or practice of occupational medicine.

"4. Limitation of practice to full-time teaching, research, or practice of occupational medicine.

"*Applications*: Each application for examination must be made on the prescribed form (which may be obtained from the Secretary), and be accompanied by the required documentation, and must be filed with the Secretary, ordinarily not less than 90 days prior to the date of examination. The application must also be accompanied by the application fee and two recent, clear, unmounted, autographed photographs of the applicant one of which should be attached to the application and the other unattached.

"*Fees*: The fee for application and examination is $90, payable as indicated below; additional fees are payable for re-examination, as set forth at a later place in this bulletin, but no additional fee is payable for the issuance of a Certificate. Application fee, $15.00. No application will be considered unless accompanied by the application fee. The application fee is not refundable. Examination fee $75.00. This fee is payable when the applicant is notified of acceptance for examination, and, if paid prior thereto, is not refundable after such notification has been given.

"No member of the Board is authorized to give informal opinions as to the eligibility of candidates. The determination of eligibility will be made only by the Board after receiving full application information. Each candidate must comply with Board regulations in effect at the time the examination is taken and also those in effect at the time the Certificate (if any) is issued, regardless of when his original application was filed. An applicant declared ineligible for admission to examination may refile or reopen his application on the basis of new or additional in-

formation within two years of the filing date of his original application without payment of an additional application fee.

"Applicants who are declared eligible for examination but who fail to submit to examination within three years of the date of the filing of the application are required to file a new application and to pay a new application fee.

"Certification in Occupational Medicine without Examination. (Founders Group): The bylaws authorize the Board, for a limited period of time, to excuse from examination specialists in occupational medicine who have attained high academic rank in an approved medical school or an accredited School of Public Health or professional position, or by reason of distinguished achievement in the field of occupational medicine are recognized leaders, or have had a minimum of 10 years of distinguished service in the field of occupational medicine and are considered eligible by the Board, whether or not they meet the eligibility requirements previously referred to. Applications for consideration as members of the Founders Group must be received not later than July 1, 1956. The application fee must accompany the application, and the examination fee is payable before certification even though the applicant is excused from examination."

Accompanying the bulletin was a circular stating that "applications received by May 20 will be reviewed by the Eligibility Committee at its Spring Meeting." This should not be misunderstood; it was not intended to mean that all applications were required to be in by May 20. It meant only that whatever applications had been received on or before May 20 would be reviewed by the Committee at its Spring Meeting — which as yet has no date. Applications received after May 20 are to be reviewed at later meetings.

THE foregoing does not establish that all details have been consummated or that all difficulties have been resolved. Enormous labors still remain, chiefly the task of selection of the Founders' Group. It may be months before the first examination of other applicants is conducted. Yet all is foreseeable.

Representation on the American Board of Preventive Medicine is provided through the elevation from the Interim Board of Drs. Robert A. Kehoe, James H. Sterner, and A. G. Kammer. Dr. Kehoe was elected Vice-Chairman for Occupational Medicine; Dr. Sterner and Dr. Kammer were elected members representing Occupational Medicine. Not readily could better selections have been made. Through the years of tedious negotiations by the Interim Board, the activities of these gentlemen have been outstanding. The Interim Board, its mission having been accomplished, is in process of dissolution. That Board, which from its inception has been of the same membership, has consisted of: Dr. Robert A. Kehoe (Chairman); Dr. Carl M. Peterson (Secretary); and Drs. Rutherford T. Johnstone, A. G. Kammer, Anthony J. Lanza, Carey P. McCord, Robert C. Page, Frederick Slobe, and James H. Sterner.

The formal endorsement of the Advisory Board for Medical Specialties and the Council on Medical Education and Hospitals of the American Medical Association will be given at the time of the AMA meeting at Atlantic City this month.

End-of-Probation Interview

IT IS a truism that the best criterion of a man's ability to carry out a work assignment is his performance in it. This applies to all workers, although it has special meaning in connection with the physically handicapped. With the unrestricted, the industrial physician's concern is the worker's reaction to his assignment. With the physically handicapped, the industrial physician is, of course, interested in the handicap itself, but more in the applicant's acceptance of it. This is particularly true in cases in which the subjective symptoms of the applicant comprise the only means of estimating the disability.

With this in mind, an interview is now carried out in our Medical Department (John Labatt Limited, London, Canada) just prior to the expiration of the new employee's probation period. If the employee in question is physically handicapped, inquiry is made as to whether the work requirements are compatible with his defect. If he is an unrestricted worker, the inquiry is to ascertain whether the demands of his job are too great for him. He is asked whether shift work bothers him, and whether any problems—either physical or psychological—have arisen relative to the general work situation. His absenteeism record and work performance are reviewed. If his assessment is bad, this is the optimum time for his separation.

One result of these interviews among those cleared with personnel for final acceptance has been a marked reduction in the requests for reallocation once the employee is entrenched in the union. It is difficult for the individual to protest later that the job demands are too great when he has previously assured the interviewer that he was adequate to meet the requirements. The interviews have also been constructive from the point of view of the union. They have reduced the number of re-allocation problems in which seniority conflicts with medical recommendations. In addition, the interview provides the opportunity to assess the mental health of the worker and to judge whether he will become an effective part of the work force.

—G. A. WAINWRIGHT, M.D.

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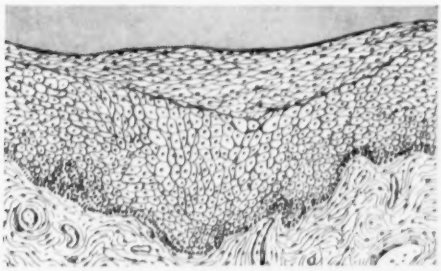
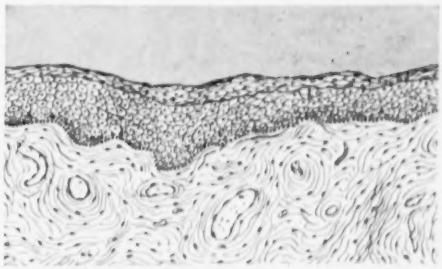
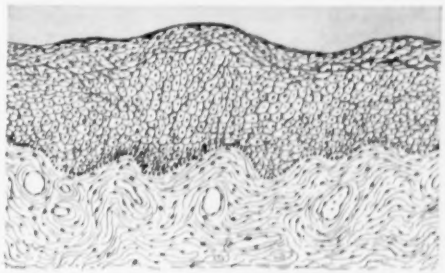


Adult vaginal epithelium maintained by estrogen activity.



During menopause, mucosa reverts to the infantile type.

Postmenopausal mucosa—thinning and atrophy of layers.



Vallestril slows transitional phase during menopause.

Vallestril, brand of methallenestril, is preferentially indicated whenever estrogens are of value. Its selective "target action" is on the vaginal mucosa with a minimal effect on the endometrium and, therefore, the incidence of withdrawal bleeding is exceedingly low.

> "The failure to encounter withdrawal bleeding in any patient was most gratifying . . . unique as well as clinically advantageous."*

Vallestril quickly controls menopausal symptoms, the pain of postmenopausal osteoporosis and the pain of osseous metastases of prostatic carcinoma.

DOSAGE: Menopause: One tablet (3 mg.) two or three times daily for two or three weeks, followed by one or two tablets daily for one month or longer depending on the patient's response to therapy. Supplied only in scored tablets of 3 mg. G. D. Searle & Co., Research in the Service of Medicine.

*Sturnick, M. I., and Gargill, S. L.: New England J. Med. 247:829 (Nov. 27) 1952.

SEARLE

CONVENIENT SANITARY ECONOMICAL

FOR INDUSTRIAL USE

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ANACIN... The Anacin Industrial Unit provides 250 cellophane envelopes, each envelope containing two Anacin tablets. This package offers the advantages of cleanliness and convenience for dispensing to individuals. It also assures the proper dosage in every case. Anacin is preferred in so many industrial dispensaries because Anacin gives fast, long-lasting relief from pains of headache, neuritis and neuralgia. When you order Anacin® tablets, order them in this special sanitary industrial unit, 250 envelopes, or 500 tablets, for $2.83.

BiSoDol Powder... Fast acting, antacid alkalizer ... Packaged in a 16 oz. wide-mouthed bottle for easy, quick dispensing. BiSoDol® is exceedingly effective in relieving upset stomach, acid-indigestion, "gas," heartburn, sour stomach, fullness, nausea and other forms of distress when caused by excess stomach acidity. $1.87 each.

BiSoDol Mints... For greater convenience, BiSoDol is also packaged as mint tablets, 500 to the bottle. BiSoDol Mints are so palatable that they may be taken without water, if desired. $1.70 for 500 tablets.

PREPARATION H®... containing new healing substance, (Bio-Dyne®) – discovery of a world-famous research institute, is effective in the reduction of external and internal Hemorrhoids. PREPARATION H relieves the accompanying pain and discomfort – clinical records show that healing takes place in a short period of time. Packaged in 1 oz. tubes with applicator. $8.80 per dozen tubes.

InfraRUB*... an analgesic cream for fast relief from muscular aches, pains and strains. Excellent for relief of aches and pains associated with rheumatism, arthritis, lumbago, neuritis, neuralgia and muscular injuries and sprains. Contains lanolin. Packaged in 1.33 oz. tubes. $8.80 per dozen tubes.
*Trade Mark

SPERTI® OINTMENT... For the treatment of burns, cuts, abrasions, contains biological substances obtained from yeast and fish liver cells which act in minute quantities directly on injured cells to stimulate their metabolism and proliferation. Minimizes scar formation – promotes rapid healing. Packaged in 1 oz. tubes. $6.80 per dozen tubes.

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News, Comment, Opinion

TURNOVER figures show that it costs a minimum of $300 to hire, train, and then lose a rank-and-file clerical or factory worker, according to Industrial Psychology, Inc. This figure represents basic investment in the employee, and does not include replacement cost, unemployment compensation cost, slowdowns in production, etc. Surveys also indicate that about one out of every four workers is a marginal performer—i.e., the company is fortunate if it breaks even when the worker's productivity is balanced against his overhead.

—*Best's Insurance News*, quoted in *Management Review*, May, 1955.

The Work Break

TECHNIQUES for increasing productivity are sometimes rather complex in conception and indirect in effect. But a memo of unidentified origin recently printed in the newsletter of the Personnel and Industrial Relations Association of Los Angeles tries the opposite approach: "To All Employees: Owing to increased competition and a keen desire to remain in business, we find it necessary to institute a new policy—*Effective immediately*, we are asking that somewhere between starting and quitting time and without infringing too much on the time usually devoted to lunch period, coffee breaks, rest period, story telling, ticket selling, vacation planning, and the rehashing of yesterday's T.V. programs, each employee should endeavor to find some time that can be set aside and known as the 'Work Break.' To some this may seem a radical innovation, but we honestly believe the idea has great possibilities. It can conceivably be an aid to steady employment and it might also be a means of assuring regular pay checks. While the adoption of the Work Break Plan is not compulsory, it is hoped that each employee will find enough time to give it a fair trial —The Management.

—*The Management Review*, May, 1955.

M.D. Day

M.D. DAY at G.E. Plants enables company to get advice of local physicians in reaching solutions to various industrial health programs, such as excessive absenteeism, abuses in insurance coverage. Each plant receives specially-prepared manual, which blueprints experience-tested community relations programs for physicians. Doctors are invited to plant to observe workers on job and learn about G.E.'s policies. Special handbook, entitled "Welcome, Doctor," distributed to physicians at time of visit, outlines what G.E. believes are its responsibilities as employer and community neighbor and briefly describes company benefit programs.

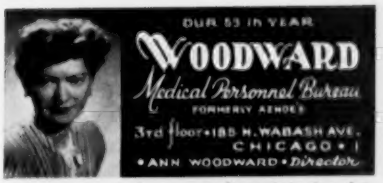
—*Industrial Relations News*, May 7, 1955.

Health Physics

A HEALTH PHYSICS Conference, covering the field of radiation safety, will be held June 13-15, at Ohio State University. Topics on the program will include radioactive waste disposal, air sampling, dosimetry, health physics instrumentation, legislation, reactor safeguards, and other specialized subjects. Francis J. Bradley, Superintendent of Radiation Safety at Ohio State, said the meeting is ". . . . intended to bridge a gap between the theory of radiation safety and its practice in the field in the last few years." Details may be obtained from Mr. Bradley at the Office of Radiation Safety, Ohio State University, Columbus 10, Ohio.

Diet and Driving

IN A RECENT publication from the Harvard School of Public Health, "Human Factors in Highway Transport Safety," prepared by Ross A. McFarland and Alfred L. Moseley, of the Department of Industrial Hygiene, the relation between diet and driving efficiency is made clear. Although this publication deals primarily with truck and bus operation, anyone who drives a car will find it interesting, instructive, and applicable. In a survey of the food habits and diets of local and long distance truck drivers the authors find a consistent, tendency toward low intakes of calcium, vitamin A, riboflavin, ascorbic acid, and roughages, along with a tendency to eat large starchy meals, the latter contributing to the dangers of after-meal sleepiness. Work schedule governs to a large extent the content of meals and the time at which they are eaten. Unusual working hours and skipped meals have their effects on digestion and nutritional status. Conse-



Founders of the counseling Service to the medical profession, serving medicine with distinction over half a century.

SITUATIONS WANTED

Medical Director: (a) 34; M.D., Johns Hopkins; 4 yrs, Medical Officer, Naval hosp; completing 3 yrs wk in indus med, univ Cincinnati leading to Doctorate; Indus Med; exceptionally well prepared inter'd in indus med as career; will consider assistantship, major Company.

Staff: (b) 32; Cat IV; Class "A" grad; 6 yrs successful priv gen'l & surg practice; prefers indus med.

Staff: (c) 30; M.D., Harvard; sev yrs, indus phy; one of country's finest med indus facil; inter'd career appointment. East.

Staff: (d) 31; Ortho & gen'l surg residencies, 1 yr each; tch'g hosps; sev years, indus phy, major company; prefers West, W.Coast.

Staff: (e) 31; M.D., Toronto; sev years surg res, American hosps; 3 yrs, priv gen'l pract in Canada; seeks indus post East; pref N.Y.

Staff: (f) Board elig internist; Medical degree, Harvard; past year, priv gen'l pract; prefers indus med with reg hours; draft exempt; merits good consideration for post as assistant Medical Director.

SITUATIONS OPEN

Medical Director: (g) excel certified indus med facility of paper mfg Co; 1700 employ, to $12,000; Southeast.

Assistant Medical Director: (h) Electonic mfg. plant 15,000 employees; dept staffed by 8 parttime phys (4 Dipls) 4 full time phys; 8 nurses; career post; city 250,000 nr univ med center; East.

Assistant Medical Director: (i) Will succeed present dir; heavy metals indus, major Co; $12,000 plus numerous benefits; Central.

Chief Physician: (j) Full chge of plant; leading Co; outstanding med program affil with univ med schl; recommended for one considering career in indus med; will work under one of country's most highly qual indus medical directors; Central.

Staff: (k) Care of 7000 employ on Engineering staff of one of Americas largest companies; req's one inter'd internal med; 1 yr or 2 of res prefer'd but not nec; town 100,000 nr 2 med schls; to $12,000; MW.

Staff: (l) Indus clinic of very lge Co with 15,000 empl in area; duties principly to consult with outside doctors regarding emply; req's one w/lean'g toward int medicine; to $12,000; excel potential; lge city nr sev univ med schools; North-East Central.

Industrial Physician: (m) One qual to adm impor indus med program; very lge company; substantial sal; town 250,000; West.

Staff: (n) Major Co; arsenal program; to $12,000; nr univ med center; Mid-East.

Staff: (o) Atomic Energy Project; indus & preventive aspects; desirable if trn'd in medicine, P.H; toxicology or cardiology; excel potential to advance in this field; leading Co; med facilities include 150 bed hosp; West Coast.

Staff: (p) Full time; med section serves 3000 employees; impor paper mfg co; attrac town, Great Smoky Mountain area.

Staff: (q) Full time; to replace sev part time men; lge Co; excel policies; Chgo.

Staff: (r) Regional plant, major Co; oppor advance to higher level; Co is largest employer of indus phys in State; NE.

Staff: (s) Part time Gen'l Practitioners; med care program impor Co; outstand'g facilities; oppor own pract; fairly lge city; N.Y.

Many other opportunities in all sections of our country with excellent Companies.

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quently, recommendations for better food habits and meal patterns to fit the need of truck and bus drivers and to improve the efficiency are outlined.

—*Vineland, New Jersey, Times-Journal*, April 14, 1955.

Forty-Third Safety Congress

THE Forty-Third National Safety Congress and Exposition is to be held October 17-21 in Chicago. Sessions on industrial safety are scheduled at the Conrad Hilton, Congress, Morrison and La Salle hotels; traffic safety sessions at the Congress; commercial vehicle and transit safety sessions at the La Salle; farm and school sessions at the Morrison; home safety session at the Conrad Hilton. For further information write R. L. Forney, General Secretary, National Safety Council, 425 North Michigan Avenue, Chicago 11.

Audiology for Industry

COLBY COLLEGE, Waterville, Maine, will present the Third Annual Course in Industrial Deafness, August 7-13, 1955. The objective of the course will be to train personnel in initiating and conducting hearing conservation programs in noisy industries. Seven full-time instructors have been selected from authorities in this field. The class is limited to 20 participants. Registrants will live on the college campus, and tuition fee of $200 includes board and room. Applications should be made to Mr. William A. Macomber, Director, Division of Adult Education and Extension, Colby College, Waterville. Frederick Thayer Hill, M.D., is Director, and Joseph Sataloff, M.D., Assistant Director.

Management Audit

THE FIRST Management Audit of an institution or foundation ever published has just ben completed by the American Institute of Management, New York. It demonstrates that Mellon Institute of Industrial Research has greatly improved cooperation between science and industry in pursuit of their common goals. Mellon Institute was lauded for its unparalled contribution to industrial scientific development and to the betterment of public welfare. Industrial Hygiene Foundation was cited in the report as a sound instance of the kind of long-range development and improvement in which the Institute engages. Founded in 1913 by Andrew W. Mellon and Richard B. Mellon, the Institute has been the "unsung hero" in the development of many new products, some leading to the creation of whole new industries. Approximately 1500 patents, all of which are assigned to the companies sponsoring the research, have been granted by the government for products or processes developed at the Institute. Some 75 Fellowships remain in effect at a time, each pursuing a long-range research project on behalf of a sponsoring company. Research expenditures of Mellon Institute are 56 times greater today than they were 40 years ago. In the interim one of the finest scientific libraries in the world has been built up also. Industrial Hygiene Foundation is proud to have been founded at Mellon Institute and to have been a growing part of it for the past 20 years.

—*Foundation Facts*, April, 1955.

The Key

to successful therapy . . .

for Contact Dermatitis

- Contact Dermatitis IS THE MOST FREQUENTLY ENCOUNTERED OF ALL DERMATOLOGICAL DISORDERS.
- THE OBJECT OF THERAPY IS TO SOOTHE AN ALREADY IRRITATED SKIN. DO NOT OVERTREAT.
- THERE ARE NO CUTANEOUS CONTRAINDICATIONS TO BATHS, SOAKS OR WET DRESSINGS. MAKE USE OF THEM.
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PROMOTE FASTER HEALING
AVOID OVERTREATMENT

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FOR WET DRESSINGS, PACKS & SOAKS. THE NUMBER ONE SOLUTION USED IN INDUSTRY TODAY FOR SUCCESSFUL TREATMENT OF CONTACT DERMATITIS.

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For Adults, Too

THE NATION is just after saluting Dr. Jonas Salk & Company for their great win over the childhood scourge of polio. Now another important medical group is convening to see what extra helpings of health can be brought to America's 62,000,000 adult workers. Over 2,000 doctors, dentists, hygienists, nurses and specialists assemble in Buffalo for their annual four-day Industrial Health Conference. President Eisenhower and Governor Harriman have sent their warmest blessings; both are aware that the high health standard of the U.S. worker is one of this mechanized nation's prime assets. That good health didn't just happen. For years, some of our best medical and industrial minds have been devising and improving non-Socialist methods to protect factory, shop and office workers from such hazards as air pollution, nerve-racking noise, metal poisoning, radiation, and unnecessary risks to eye and limb. Workshops now are safer than homes. These voluntary, health-on-the-job programs for adults aren't as dramatic as the discovery of miracle vaccines for our youngsters. But such medical research and practice are of top importance to the well-being and earning capacity of millions of us. We're wishing our medics at Buffalo another productive session.

—*New York City Daily News*, April 25, 1955.

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skin closure sutures

three dozen needle sutures
in sterile pack jars—ready to use—
includes chrome-plated rack—
all for price of sutures alone

NEW POCKET SURGISET™

six tubes of needle sutures
compact—convenient—
ready to use

✓...both with
new reverse-cutting
ATRALOC® Needles

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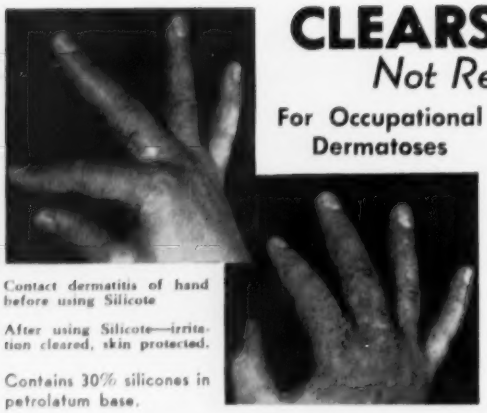
Is It Missing the Mark?

THE LONG-RUN value of the private college and university to industry is not trained personnel and basic research results. The real values lie in the fact that U.S. industry and education stand for the same things. When our free and independent colleges and universities fail, American industry also will fail. As business stands for free enterprise in the market place, we stand for a free market in ideas. There follows from this the conclusion that the gifts to private education which are most beneficial to education, and in the long run to industry itself, are gifts which help to maintain the freedom of the institution. The money that is of greatest value is the money that is the least restricted. If gifts are restricted to scholarships or to a field of science or to buildings or to a particular professor, the college or university is restricted in what it ought to be doing. This is not an easy idea for industry to swallow, and I clearly recognize the problems. Why should business give a substantial chunk of stockholders' money to an educational institution to let it do whatever it pleases? I can only answer that, just as industry would resent—and properly so—being told by a collectivist government what to produce and how and in what quantities to produce it, so we resent being told what to teach and how and to whom to teach it. Business must remain free in a competitive system if it is to remain strong, and in the long run educational institutions must remain free, too, if business is to remain strong.

—From "Aid to Education: Is It Missing the Mark?" by LAWRENCE A. KIMPTON (Chancellor, University of Chicago), in *Commerce*, quoted in *Management Review*, March, 1955.

Doctors Should Know

APPARENTLY it is not generally realized that the only voice



Contact dermatitis of hand before using Silicote

After using Silicote—irritation cleared, skin protected.

Contains 30% silicones in petrolatum base.

CLEARS UP MANY CASES

Not Responsive to Other Therapy

For Occupational Dermatoses

Silicote protects skin against aqueous irritants and permits skin to heal. Patients can continue normal work during Silicote use. It adheres to skin, is inert. Send for samples.

1. Talbot, J.R. et al: J. Inv. Derm. 17:125
2. Morrow, Grant: Calif. Med. 80:21

SILICOTE

SILICONE OINTMENT

ARNAR-STONE LABORATORIES, INC., MOUNT PROSPECT, ILLINOIS

the practicing profession has at the international level is the World Medical Association. An increasing number of problems pertaining to medicine and its methods of practice are being discussed at that level. With the exception of the World Medical Association, all these organizations are either governmental or semi-governmental. While governments have an interest in medicine, their viewpoint should not be the only vocal one. What are these problems of vital concern to the individual doctor? (1) Certain national and international groups are attempting to establish a code of international medical law governing the activities of doctors in both peace and war, wholly ignoring the rights and privileges of the doctors themselves. (2) The International Social Security Association has adopted resolutions which when implemented will force its philosophy on the medical profession. To date it has refused even to discuss medical problems of social security with representatives of WMA. (3) Various governmental and semi-governmental bodies are ignoring the principles of medical secrecy. (4) One international organization has adopted a resolution controlling the doctor's treatment of his patient. (5) This same organization has a plan to revise medical education according to its philosophy. How many doctors are even aware of the existence of these problems, much less of the actions of the World Medical Association to combat them?

The high degree of solubility of "Thiosulfil" combined with its high bacteriostatic activity and low acetylation rate insure rapid and effective action with virtually no side effects.

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Brand of sulfamethylthiadiazole

safest, most effective sulfonamide for urinary tract infections

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Far too few. All doctors should be enlightened.

—*World Medical Journal*, January, 1955; in *Pennsylvania Med. J.*, April, 1955.

The Muscular M.D.s

OVER the years, physicians and anthropologists, scientists and pseudoscientists, have seriously considered the relationship between the body physique (or habitus) and mental, emotional, and psychologic characteristics. From Oxford, England, comes a report on the relationship between physique and profession. Sheldon and coworkers had previously devised a somato-type graph by which one may determine to what extent a person can be classified as belonging to each of the three types of physique: ectomorph, mesomorph, and endomorph. The ectomorph is the linear, ectodermal type of individual; the mesomorph is the muscular variety; and the endomorph is the visceral, fat, round variety. The typical ectomorph is supposed to be academic and intellectual, poor in his social adjustments and his ability to manage people. The mesomorph is aggressive and athletic, a good manager and salesman but a poor academician. The endomorph is supposedly neither intellectual nor aggressive but rather given to the physical pleasures of life. Parnell measured students at Oxford and Birmingham and found that, whereas those majoring in chemistry, physics, or mathematics were for the most part ectomorphs, the medical and dental students and the mechanical engineers were predominantly mesomorphs. Endomorphs seemed to play only a small part in any of the groups of university students. Parnell is alarmed at the apparent selection of physique and (presumably) temperament in the various professional groups. He wonders how effective a university education can be in giving qualities of human feeling, leadership, and managerial ability to those scientists and mathematicians who, being ectomorphs, are presumed to be lacking in these qualities. With regard to the muscular medical men, he wonders if education can give these natural "doers" the scientific outlook he feels they should have and now lack.

—*From Eli Lilly and Company's Physician's Bulletin*, February, 1955.

It Has What it Takes For
CHEMICAL DISINFECTION
OF SHARP SURGICAL INSTRUMENTS

You can rely on
B-P FORMALDEHYDE GERMICIDE to...
contains HEXACHLOROPHENE (G.11*)
KILL vegetative pathogens and spore formers within 5 minutes.*
KILL the spores themselves within 3 hours.*
KILL tubercle bacilli within 5 minutes.*
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SUGGESTION! B-P CONTAINERS are all especially designed for convenience in conjunction with the use of B-P GERMICIDE.

Used as directed, it will not injure keen cutting edges, points of hypodermic and suture needles, scissors and other 'sharps' . . . nor rust, corrode or otherwise damage metallic instruments.

IT'S THE ECONOMICAL ANSWER towards keeping annual costs for solutions and instrument replacement and repairs at a minimum. May be used repeatedly if kept undiluted and free of foreign matter.

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Spurious Back Injuries

CLINICAL evaluation of 160 typical back injury cases in workmen's compensation from a cross-section of industry in New York State revealed "the bankruptcy of medical diagnosis," and 80% of the cases are "characterized by the presence of an anxiety state" rather than degeneration of a lumbar disc. Dr. Henry H. Kessler, disclosed this in a recent report to the Commerce and Industry Association of New York. Emphasizing the need for early treatment of low back pain, which his study revealed as being "only casual," Dr. Kessler viewed the

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for prompt, safe relief from

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for over 25 years.

IDEAL FOR INDUSTRIAL USE

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ADVANTAGES OF D COMPOUND

- Affords prompt relief.
- Easy to take capsules.
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- Repeated dosage not necessary.
- No harmful after-effects.

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present comparative unconcern about back pain as "part of the primitive folklore of medical care—'if we do not pay any attention to it, it will go away.'" He recommended initiation of the following program: (1) If a claimant has not returned to work within 60 days after an injury-causing accident, the case to be referred to a rehabilitation team in a community hospital for clinical diagnosis and prognosis. (2) Establishment of advisory committees in state and county medical societies to formulate guiding principles of diagnosis and disability evaluation. (3) Establishment within the Workmen's Compensation Board of a full-time medical division for the supervision of the whole program of medical care under workmen's compensation; establishment, through general orders in association with advisory committees of organized medicine, of basic principles of initial treatment, rehabilitation review, disability evaluation, physical rehabilitation, and research. (4) Establishment of a rehabilitation division within the Board with power to carry out its function. A prominent feature of all the cases studied, Dr. Kessler noted, was the prolonged period of disability and the lengthy administrative process. "Report after report emphasized the lack of objective evidence to corroborate the subjective complaints of the patient; natural enough, since few of the examiners directed their attention from the patient's back to his total personality." In almost half of the 80% of cases in which the anxiety state and neurotic behavior dominated the entire pattern of symptoms, evaluation of psychiatric and social case work findings indicated intrinsic factors in the patient's personality appeared to be the

AUDIOLOGY FOR INDUSTRY

Colby College, Waterville, Maine, presents the Third Annual Course in Industrial Deafness, August 7-13 inclusive. Objective of the course will be to train personnel in initiating and in conducting conservation hearing programs in noisy industries. Seven full time instructors have been selected from authorities in this field. Class limited to twenty participants.

Registrants will live on the College Campus and the Tuition fee of $200.00 includes board and room. Applications should be made to Mr. William A. Macomber, Director, Division of Adult Education and Extension, Colby College, Waterville, Maine.

Frederick Thayer Hill, M.D.
Director

Joseph Sataloff, M.D.
Assistant Director

Reece Wood Sole Acts As Splint

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BROKEN FOOT BONES
CRUSHED TOES SWOLLEN FEET

SMOOTHLY finished WOOD SOLE with AIRFOAM insole acts as splint. Keeps injured foot immobile.

Keeps a man on his feet and on the job. Cool, firm but lightweight canvas upper laces entire length . . . makes for perfect fitting even though heavily bandaged. SIZES—Small, Medium, Large.

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determinant. In the other half, where extrinsic factors of a litigenic nature were dominant, "there were numerous hearings and copious examinations and conferences, and improvements did not occur until there was a final award or settlement. We have found that the present compensation system of medical care is inadequate to control neurotic behavior, relieve symptoms or reduce the period of disability. Only through a revolutionary change in methods can we expect any improvement, and this change is orientation toward the rehabilitation system. Rehabilitation demands that physicians cooperate among themselves, with the members of the industrial commission, and with all the para-medical personnel identified with the program. Workmen's compensation is still suffering from an Oedipus complex. It is still nursing at the breast of employers' liability and it derives its strength from the milk of dependency. Its very vocabulary, emphasizing, as it does, disability and dependency, expresses this deep and obsessive association. We need a new look at the role of workmen's compensation in society today." Citing "maximum benefits for the workers with minimum costs to employers" as the basic objectives of a modern compensation program, Dr. Kessler viewed its goals as (1) restoration and rehabilitation of the disabled worker to optimum physical, mental, social, and economic well-being; (2) assured, prompt, and adequate cash benefits; and (3) their provision through arrangements that will minimize costs to employers and society. "The objective of rehabilitation," he pointed out, "goes beyond accurate diagnosis and expert treatment; it is no less than restoration of the whole man to a useful function in society. With this in mind, the medical profession may have to modify some of its time-honored ideas. Free choice is not the issue here, but the maximum type of medical service which can be given to the worker to insure his prompt recovery. Doctors must not only cooperate with each other, but also with social workers, psychologists, vocation educators, employment counsellors, private welfare agencies, government officials, employers, insurance companies and unions. Through the cooperative collaboration of this team of para-medical workers rehabilitation can be fully successful."

—Association News Release.

Executives' Health: A Survey

COMPANY health programs for executives are definitely on the increase, according to the findings of a study of the health programs of 120 companies recently completed by the National Industrial Conference Board. The greatest growth in executive health programs has taken place during the last 10 years. Sixty-nine percent of these firms initiated their health programs some time after the close of World War II; half began their programs in the early 1950's. A large part of this growth is due to modern management's belief that more efficient management is bound to come from healthy executives and to a growing awareness of the importance of protecting the company's tremendous investment in executives. Three-fourths of the companies surveyed make the periodic physical examination a voluntary procedure, and the majority report about 90% participation by executives on this basis. Only eight companies indicate that less than 75% of their executives participate. Proper promotion and selling of the plan is one essential factor for good and willing participation of key personnel in their programs. This selling effort begins with the

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the velvet-soft elastic bandage
that stays in place like a second skin

ELASTICFOAM is a completely new type of bandage which combines the best properties of adhesive plaster, elastic, and cotton bandages. It is made by permanently bonding a sheet of multi-slit foam rubber to a superior quality cotton elastic bandage.

ELASTICFOAM stays in place like adhesive plaster—shaving is eliminated, redressing easy and painless.

Fully elastic (stretch 100%), does not narrow, maintains uniform pressure.

Velvet-soft and highly absorbent — may be applied directly over wounds, absorbs at least 5x its own weight of moisture.

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knee, ankle, wrist, elbow, chest and back injuries

compression treatment of varicose veins, ulcers, phlebitis

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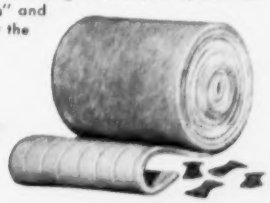
Elasticfoam bandages are 5 yards long when stretched, made in 2", 3", 4", 6", 8" widths, ⅛" and ¼" thicknesses. Available by the square yard for casts and other orthopedic work.



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announcement of the program and continues with periodic reminders that the physical examination is again due. In a majority of companies (63%) the president or some other company official writes a personal letter explaining the plan to the prospective examinee, and the same official may send periodic reminders that examination time has arrived. Company practice concerning the choice of a medical examiner varies widely among companies, as well as within companies. Sixty-two of the 120 respondents use only outside agencies to conduct the medical examinations. Fifty-eight use company doctors; however, half of these companies give the examinee an option whereby he may choose his own physician. Of the firms using outside agencies, 60% use clinics or hospitals in preference to a private-practice doctor. In over 44% of the 62 plans calling for the use of an outside examining agency, only the examinee receives a report of the findings, but in almost as many cases, a report is also sent to the company doctor. When the company doctor performs the examination, only the examinee learns about the findings in about 67% of the companies reporting. Though the majority of the companies believe that the findings of executive physical examina-

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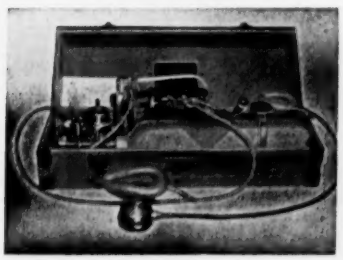

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tions should be confidential between doctors and examinees, most agree that management should somehow be apprised of an executive's negative physical findings if withholding such knowledge might injure the company, the executive, or both. An increasing number of companies are including key personnel other than top executives in their plans. Out of 102 firms, 88% extend coverage to middle management, and about half bring first-line supervisors into their plans. Roughly 46% of the programs studied also include non-supervisors such as chemists, lawyers, engineers, and editors. By far the majority of the companies surveyed report satisfaction with their executive health programs. Many mention the number of executives who have received early remedial treatment for conditions first revealed in a periodic physical examination. Equally beneficial is the clean bill of health with which many executives emerge from an examination. Some companies that have continued their programs over a period of years find that executives who have had periodic health examinations are likely to be in better physical condition than those who are examined for the first time. A great number of companies also point out that these programs mean better management by healthier persons, and better personnel relations resulting from this management. Some also indicate that executive morale improves because of a belief that the company is sincerely interested in their welfare.

—*The Management Review*, March, 1955.

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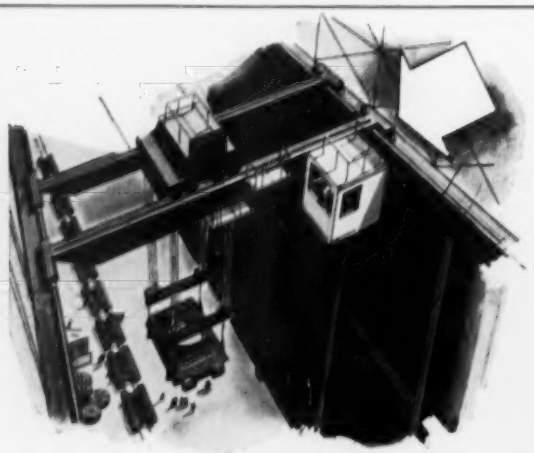

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1. Vickers, H.R., in *Psoriasis*, in *Modern Practice in Dermatology*, 1950, pp. 241-50.
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